

JPRS 69091

12 May 1977

WORLD EPIDEMIOLOGY REVIEW

No. 82

WORLD

WIDE

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BIBLIOGRAPHIC DATA SHEET		1. Report No. JPRS 69091	2.	3. Recipient's Accession No.
4. Title and Subtitle WORLD EPIDEMIOLOGY REVIEW, No. 82		5. Report Date 12 May 1977		
		6.		
7. Author(s)		8. Performing Organization Rept. No.		
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201		10. Project/Task/Work Unit No.		
		11. Contract/Grant No.		
12. Sponsoring Organization Name and Address As above		13. Type of Report & Period Covered		
		14.		
15. Supplementary Notes				
16. Abstracts The report contains worldwide press and radio coverage of incidence, outbreak, and other aspects of human, animal, and plant diseases, insect pests and control, sanitation conditions, immunization and public health programs.				
17. Key Words and Document Analysis. 17a. Descriptors Worldwide Clinical Medicine Environmental Biology Hygiene and Sanitation Microbiology				
17b. Identifiers/Open-Ended Terms				
17c. COSATI Field/Group 2E, 6E, 6F, 6I, 6M				
18. Availability Statement Unlimited Availability Sold by NTIS Springfield, Virginia 22151		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 90	
		20. Security Class (This Page) UNCLASSIFIED	22. Price AOS	

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WORLD EPIDEMIOLOGY REVIEW

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This serial publication, based on worldwide press and radio reports, contains information on the epidemiology of human, animal, and plant diseases. Disease incidence, reported outbreaks, and various related epidemiological factors are included. Items are presented by country of occurrence rather than by country of original press report.

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I. HUMAN DISEASES

GENERAL

RESEARCH HOLDS OUT HOPE FOR PLAGUE CONTROL IN AFRICA

Kampala VOICE OF UGANDA in English 25 Mar 77 p 4

[Article by B. E. Mavulla]

[Excerpts] Today, plague is spread in various areas of the three East African states and their neighboring countries, notably, Zaire and Zambia.

According to Mr B. S. Kilonzo, the Research Scientist dealing with Plague at the East African Institute of Malaria and Vector-borne diseases at Amani (Tanga), Tanzania has many areas considered as active foci of plague, since they have had small-scale outbreaks of the disease in the recent past. These include East Kilimanjaro (Rombo), where the last epidemic is recorded to have occurred in 1962; South Pare (1964); Mbulu (1968); Arumeru District (1969); and West Kilimanjaro, where it occurred as recently as in 1972, involving 35 cases with ten deaths.

In Kenya, the areas which have been recorded as active foci encompass Rongai, in the Rift Valley; Kericho, Kitale, and Machakos. In fact plague was isolated from rats captured from the first focus in 1951.

Uganda has many active foci spread all over, but the important ones seem to be on the foot and the slopes of Mount Ruwenzori near Lakes Idi Amin Dada, and Mobutu Sesse Seko.

Although the above-mentioned areas are the main ones thought to be potentially vulnerable to a plague epidemic, still there are other areas of East Africa which have aroused researchers' interests. So Mr Kilonzo points out, that the mere fact that a few animals which were serologically positive for plague have been found in Chunya, Tanzania must be a cause of concern to those who endeavor to bring this killer disease under control.

Likewise, even those areas which have not had the epidemic in recent years should also be under constant scrutiny to ascertain that the disease has really been eradicated from the area. Such areas include Iringa which was first hit by the epidemic in 1886, thought to have been introduced from the north during the Wahehe raids; and again in 1903, then the disease being known locally as "Chambafu"; and some parts of Uganda, where the epidemic was referred to as "Kawumpuli," before missionaries in that area identified it as plague in 1876.

Moreover, efforts to control plague in East Africa would be rendered futile, if the neighboring countries were not taken into consideration. It has been amply established that the plague bacillus around Lake Mobutu Sesse Seko, in Zaire is identical to the one found in the Western Uganda foci. Zambia on its part, has an active focus of the disease in the Luangwa Valley, in the neighborhood of Lake Malawi. In this respect therefore the East African Institute of Malaria and Vector-borne Diseases (EAIMVBD) tries to enlist the aid of researchers in the nearby countries in this field, through exchange of views at international meetings, and via the good offices of the World Health Organization.

The research project on plague at the Amani-based EAIMVBD however is still in its infancy. It was just in 1970 when Professor Wasawo's working party recommended that the East African Medical Research Council should undertake research on plague. In 1971, the Council adopted the recommendation, and vested the responsibility to carry out the project on the Institute.

Preliminary studies and establishment of the plague research project were initiated at Amani in November 1973. The terms of reference were, to study and establish the current status of plague in East Africa especially in those areas where outbreaks had occurred before; to establish the seasons in which the disease was most likely to occur at various places; to study and establish susceptibility of fleas to insecticides in current use, especially those fleas of domestic and semi-domestic rodents, and to expound the bacteriology of the plague bacillus, with special emphasis on the virulence of the various strains of bacteria and their survival outside the host.

The terms of reference are meant to delve into the outstanding questions as far as plague in East Africa is concerned. It has so far not been established if the disease has been completely wiped out in those areas where outbreaks have occurred in the past; or, if there are remnants of it, to what extent that posed a danger. Further, it would greatly simplify the control work, if it could be ascertained that the outbreaks were directly linked with definite geographical or sociological patterns of East Africa.

To date, little is known about the strains of plague bacteria in East Africa. It could happen, that some strains are non-pathogenic; and it would be waste of time and funds to dedicate efforts in getting rid of such strains. Yet on the other hand, such a study on bacteriology of plague bacillus could lend flesh to the bony research findings of some scientists, such as that by one

researcher, who has proved Iran could live up to seven years in the soil after the host's death; which means, a farmer would be vulnerable to this disease anytime he came into contact with the bacillus within those seven years.

But in spite of such a well elaborated list of items to serve as terms of reference, the Institute at Amani was ill-prepared for a research project of this magnitude. As Mr Kilonzo puts it: "There are no special funds for it: There are no special buildings and equipment for it; and we lack people to man the project. All the same we go on with the preliminary studies with the minimum facilities at our disposal."

The "minimum facilities" though, seem to be heaving tons of scientific rocks and precipitating fine sediments of research sifting. Thus it has been established that the commonest rodent species in this area are the domestic black rat (*RATTUS RATTUS*), the field rat (*PRAOMYS NOTALENSIS*), and the chocolate rat (*LOPHUROMYS FLAVOPUNCTATUS*). The commonest flea species have been named as *XENOPSYLLA BRASILLIENSIS* (domestic-rodent flea), *DINOPSYLLUS LYPUSUS* (field-rodent flea), *CTENOPHTHALMUS CABIRUS* (also a field-rodent flea), and *ECHIDNOPHAGA GALLINACEA* (a bird-flea which is abundantly found on rodents). It has been found out also that the flea indices were quite high.

From these findings, it was deduced that if a plague epizootic was to break out in those areas, then an epidemic would likely follow among human population.

The Institute also has carried out a study of rodents and their flea ecto-parasites at the sea-ports of Mombasa and Tanga, and the Mombasa Airport. This undertaking was meant to investigate if there is any possibility of importing or exporting in or from East Africa during our times. This study however, has so far indicated that no rodents come into the region from outside.

All rodents caught in the vicinity of the areas scrutinized were found to be of the local type; and at the Mombasa port, only three rodents were caught in two ships, out of the 15 ships inspected. The commonest rodents at the ports turned to be *RATTUS RATTUS*, *RATTUS NORVEGICUS* and *PRAOMYS NOTALENSIS*. Whereas the commonest flea became the so called oriental-rat flea (*Xenopsylla cheopis*).

Due to the lack of facilities in Amani however, duplicate samples of serum have to be sent to Stavropol in the USSR, where WHO scientists conduct further diagnosis for verification. This dependence on external aid in plague research will have to go on for sometime to come. Only recently, the Specialist Committee on Plague of the East African Medical Research Council has recommended that any further bacteriological experiments on plague at Amani would have to be suspended because the Institute lacks properly equipped laboratories which would safeguard the health of the researchers.

The plague research project at EAIMVBD is not completely oblivious of the other projects going on in the Institute however. In this respect, scientists

delving into the intricacies of plague enlist the services of their colleagues dealing with malaria and filariasis. While the latter research scientists experiment with insecticides on mosquitoes, the former take the opportunity to see what effect such insecticides would have on flea-population density in those same areas.

With great zeal and immensurable efforts, the scientists at Amani are determined to bring plague under control in East Africa. In this area of scientific advancements and achievements, plague should pose no threat to general development of a country.

ANGOLA

PRELIMINARY WORK UNDER WAY FOR POLIOMYELITIS IMMUNIZATION CAMPAIGN

Luanda JORNAL DE ANGOLA in Portuguese 16 Mar 77 pp 1, 2

[Text] In a way similar to what has been taking place in all the regions of the country, the 1st National Vaccination Campaign Against Infantile Paralysis has almost completed the important census phase in the province of South Kwanza, the activity having proceeded in a satisfactory manner, according to the assertion of the provincial chief health official, and with the active participation of the mass organizations of the Popular Movement for the Liberation of Angola (MPLA).

What is left to complete the statistics of the provincial census of all the children is the information of three municipios--Cassongue, Quibala and Mussende--where the task was already finished, but the results of the activity conducted there still have not reached the Provincial Vaccination Committee because of various kinds of difficulties.

The work of the vaccination campaign in South Kwanza started last 23 February with the creation of the provincial committee made up by the provincial commissar and the provincial directors of health, education, the Angolan Women's Organization (OMA), the Youth of the Popular Movement of Angola (JMPLA), the National Union of Angolan Workers (UNTA), the Provincial Directorate of Social Affairs, the OPA, the FAPLA, the CPPA, the DIP, the ETP [expansions unknown] and the state official in charge of supplies.

This committee chaired by the provincial commissar held a meeting in which the actual work schedule of the campaign was drawn up, and the practical means of implementing it were also outlined. The corresponding committees were also established at the municipal level along the same structural lines as that of the provincial capital, to carry out in their respective areas the tasks planned at the provincial level.

It was, therefore, with this organization that the province embarked on the important vaccination campaign, initially conducting two seminars in Ngunza

and Gabela in which 8 brigades of 15 members each were set up, which were distributed among the various municipios to engage in the preparation of other brigades for the purpose of conducting a census of the infantile population of South Kwanza. The principal participants in the makeup of the census brigades were members of the OMA and the JMPLA, and the students of the Provincial Technical School of Health.

Despite Difficulties, Full Support Was Given

The provincial officials in charge of transportation and supplies effectively cooperated with the whole census process, and jointly with the Provincial and Municipal Commissariats supported the activity of the brigades in every way and to the extent of their meager capabilities.

With respect to public receptivity, the census activity was always preceded by meetings to explain how important for the health of all the children was the vaccination which the brigades carried out in the various registration centers, settlements and quarters, the masses of the people having responded favorably with a practical demonstration of their understanding of this additional active measure which the government of the People's Republic of Angola adopted for the steady improvement of the living conditions of the Angolan population.

Some examples of popular cooperation can be pointed out in connection with the campaign, there being instances of peasant mothers who came in to report the number of their children to the Municipal Vaccination Committees because they were absent from their settlements for various reasons at the time of the census.

There were some difficulties, particularly the need of means of transportation to move the brigades in municipios such as Quibala, where the distances between villages is rather considerable. The vaccination committee was not set up in Mussende, one of the municipios located farthest away from the provincial capital, on account of the extremely bad conditions of the access routes and the lack of means of transportation. Concerning this municipio, whose situation is special with regard to the rest of the province, some measures were adopted by the Provincial Vaccination Committee for the purpose of guaranteeing the vaccination against infantile paralysis.

Generally speaking, the provincial structures in charge of the vaccination campaign are ready to begin the actual vaccination on 7 April, relying for this purpose on the same brigades which carried out the census.

Children: An Important Concern of the MPLA

According to the campaign plans, all children under 10 years of age will be immunized, and the vaccine will be administered by means of a soluble sugar candy.

In more general terms, it can be asserted that this vaccination campaign against poliomyelitis forms part of the spirit of assistance to mother and child which constitutes one of the main concerns of the present national medicosanitary activity, and which was even decided on with a certain emphasis during the last Plenum of the MPLA Central Committee.

Children actually represent the future of the country and, fundamentally, of the revolutionary process in progress in the People's Republic of Angola. Public health needs to be protected as much as education, and that circumstance assumes special importance with regard to the infantile population, in front of whom the Angolan future unfolds, full of responsibilities in the support and the growing development of the revolutionary perspectives which will permit popular construction and of socialism [sic].

In that sense, the 1st National Vaccination Campaign Against Poliomyelitis, which assumes an essentially preventive character and seeks to create the conditions which will facilitate a progressive reduction of the indices of infantile paralysis in our country, is going to bring about a great combination of efforts at the level of several national sectors of activity throughout the territory of the People's Republic of Angola.

The vaccine which is going to be administered in the spirit of the health policy in effect in the People's Republic of Angola is completely free. This is one of the fundamental principles of the task which is about to be performed in our country, aimed at providing total and gratuitous medico-sanitary assistance, doing away with capitalist exploitation in the area of public health and opening up new perspectives defining the principles of socialist orientation defended by the Angolan people, under the revolutionary guidance of the MPLA.

CHOLERA CASES IN ANGOLA

Luanda Domestic Service in Portuguese 0600 GMT 29 Apr 77 LD/EA

[Summary] A Ministry of Health communique issued in Luanda yesterday says that seven cases of cholera have been confirmed in Luanda. The communique asks activist groups to insure that the population is taught the merits of cleanliness and hygiene.

FIVE CHOLERA CASES IN BENGUELA

Luanda Domestic Service in Portuguese 0600 GMT 26 Apr 77 LD/EA

[Excerpt] Communique from the Ministry of Health; The Department of Epidemiology of the Ministry of Health of the People's Republic of Angola today informed the World Health Organization that five cases of cholera have been detected in Benguela Province and have been confirmed by the laboratory services.

ARGENTINA

TYPHOID FEVER CASES REGISTERED IN CORDOBA AND SANTA FE

Buenos Aires LA RAZON in Spanish 27 Jan 77 p 7

[Text] The Public Health Secretariat of the Ministry of Social Security reported that some isolated cases of typhoid fever have occurred in Morteros, a city close to the Mar Chiquita lagoon--which has flooded areas--as well as in Laboulaye and Hernando, located in Cordoba.

In Santa Fe, too, some cases of typhoid fever have occurred in the department of San Cristobal.

The population was vaccinated in all instances, while the corresponding epidemiologic investigations are going on to determine their origin.

It was reported that the situation is under control and that the disease, which is intensified in flooded areas, poses no danger to date because of the use of antibiotics.

BRAZIL

POLIOMYELITIS INCIDENCE CONCERNS AUTHORITIES IN PERNAMBUCO

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 1 Mar 77 p 19

[Text] RECIFE--The occurrence of 23 cases of poliomyelitis involving 7 deaths in the first 2 months of this year voided the projections of the Health Secretariat of Pernambuco, and forced the Epidemiology Coordination Office to plan an intensification of the campaigns to inform the public about the effects of the disease.

The Health Secretariat had estimated there would be four cases in January and two in February. But it got a surprise when the epidemiologic bulletins listed 15 cases in January and 8 in February, 7 of them fatal, a ratio which is described as "extremely high" by Coordinator Luiz Gonzaga Virgolino.

The Epidemiology Coordination Office of the Health Secretariat explained that the increase in the number of cases in comparison with the original estimates is not due to a scarcity of vaccine or to an insufficient number of vaccination centers. "There are 10,000 doses in addition to an emergency supply of 2,000 doses at each of the principal centers. As to the centers, their number--about 300--is sufficient although it is always necessary to increase them," said Luiz Gonzaga Virgolino, who believes that the increase in the number of cases occurred because the parents disregarded the secretariat's appeals to take their children to the vaccination centers.

"The periodic mass vaccination campaigns were suspended to get the parents used to taking their small children to the centers for the administration of the doses," explains Virgolino. "However," he adds, "that did not happen to the desired degree, resulting in an increase in the number of cases. Now the secretariat is going to intensify the information campaigns not only through the mass media, but also through direct contact with the population strata that are not reached by those means of communication. It is a slow, painstaking job which must be done in order to create the awareness of the need to take the children to the centers for the administration of the three doses of the vaccine."

LEPROSY INCIDENCE CLIMBS IN RIO DE JANEIRO STATE

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 19 Mar 77 p 16

[Text] Rio--Sergio Costa Lima, director of the hospital of the National Steel Company, reported yesterday that the number of new cases of leprosy is increasing substantially (at a rate of 100 percent) in the municipio of Volta Redonda. Some 12 new cases of the disease were registered from January to August, the majority of them among workers of the steel company, but in spite of that evidence and the warning of the doctor suggesting "an immediate solution for the problem before it is too late," the local Prefecture prefers to shift all responsibility for the treatment of the patients and the prevention of new cases of the disease to the enterprise, adducing the lack of specialized personnel.

The cases of Hansen's disease--leprosy--have been increasing throughout the country, according to the Ministry of Health. The director of the National Division of Sanitary Dermatology of the ministry, Ademir Pereira de Silva, acknowledged the problem, explaining in the meantime that "this indicates that the government is more active regarding public health, detecting cases which formerly were confined to remote Brazilian areas and unbeknown to the officials."

Dr Sergio Costa Lima is concerned about the increase in the number of cases of the disease in Volta Redonda, but he prefers to attribute the situation "to the intense internal migration which has brought many people to seek work in Volta Redonda under rotten sanitary conditions." In actual figures, the situation is as follows: the hospital treated 8 cases of leprosy in 1975, a number which climbed to 24 in 1976 and has already reached 12 in the first 2 months of this year. "A significant increase," according to the doctor, which "for that very reason needs to be closely watched by the municipal, state and federal authorities."

Luiz Barbosa Filho, municipal health secretary of Volta Redonda, confirms the big increase in cases of leprosy in his municipio and also attributes it to the migration and the expansion of the National Steel Company. To the secretary, "the question of whether or not the Prefecture should treat those

patients or prevent the spread of the disease is a legislative matter." In his opinion, "dermatologists should not deal with leprosy because it is a disease whose treatment should be done by specialists, there being a suitable service for that purpose within the Ministry of Health." The secretary thinks that the Volta Redonda Prefecture does not have the means "to coordinate the fight against this illness" and must transfer this responsibility to the steel company, "seeing that the patients are mostly people of the enterprise itself."

The health secretary of the state of Rio, Woodrow Pimentel Pantoja, has already decided not to attach much importance to the growth of cases of leprosy in Volta Redonda, asserting that "this increase can be easily explained." According to him, "the steel company hospital extended its services in the past few years to persons who are not connected with the enterprise, there being a great demand on the part of people of even other states." He still asserts that "the majority of the patients come from the North and the Northeast."

In the State

In the state of Rio, meanwhile, the incidence of leprosy has increased, especially during the last 5 years. Some 584 new cases were detected in the area currently known as the state of Rio de Janeiro (formerly the states of Rio and Guanabara) in 1970. The number of new cases totaled 910 in 1975, and statistics showed 1,400 new cases in 1976. The secretary nevertheless considers that those figures do not necessarily mean that the disease is spreading wildly, "but on the contrary, they evince more accurate diagnosis on the part of the authorities." This, despite his assertions that "50 percent of the cases consist of contagious-type patients."

The problem of leprosy is no worse in the area of the former state of Rio than in the capital. According to the secretary, "if we take into consideration that there are 5,486 patients in the area of 1,412 square kilometers of the municipio of the capital, in comparison with 5,580 patients distributed over the 42,134 square kilometers encompassed by the municipios of the former state, it can be seen that the problem of Rio is worse." Still, he asserts that "with regard to the control of the disease, the capital shows a rate of 81 percent of cases under control, while that rate is 74 percent in the interior. As to the remainder, nothing is known."

In the nation, a change in the policy of diagnosis and treatment of the disease going back to 1975 has made it possible to have more accurate statistics, although the ministry makes no reference to the actual number of patients of leprosy in the country and their real condition. The epidemiologic bulletin of the Ministry of Health registered 8,908 new cases throughout the country in 1975. Proportionally speaking, the southeastern portion of the state of Sao Paulo shows the greatest incidence with 2 cases per 1,000 inhabitants. The ratio in Rio is 1 case per 1,000 inhabitants.

CAMPAIGN FOR PREVENTION OF RHEUMATIC FEVER TO BE INITIATED

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 22 Mar 77 p 30

[Text] Despite the lack of accurate statistics, estimates indicate that 3 percent of children with tonsillitis are infected with rheumatic disease--an index which is alarming in the opinion of the specialists. To prevent those children ending up suffering from cardiac ailments in their adult years, the Ministry of Health is going to conduct a national rheumatic fever prevention campaign aimed at the medical profession, the families and the community.

The campaign will be launched in April in the city of Petropolis, when the 4,000 children who make up the student population will be examined and their mothers instructed by technicians of the Ministry of Health and of the Health Secretariat of the state of Rio. The launching of the campaign was announced by Alberto de Oliveira, cardiology professor of the Child Care Institute of the University of Rio de Janeiro, who is also the head of the work group.

According to Alberto de Oliveira, Petropolis will be the test city of the campaign. From there, the experiment will be expanded to the whole country. The professor is being assisted in the task of organizing the campaign by epidemiologist Sole Verlin, of Ribeirao Preto, considered one of the greatest Latin American authorities on streptococci--the bacteria which produce rheumatic fever--and by Dr Aristides Lima Verde, of Rio.

Although the damage to the heart valves occasioned by rheumatic fever is accountable for 2 percent of the deaths due to heart diseases, only Rio Grande do Sul--according to the Ministry of Health itself--is carrying out an effective program to prevent the disease.

Aloysio Achuti, who is in charge of the rheumatic fever prevention program conducted by the Rio Grande do Sul Health Secretariat since 1973, reported that the basic objective of the task is to impress on the population the need to treat any sore throat as soon as it starts. In his opinion, that measure is most important because there still is no bivalent vaccine to prevent the development of more than 65 types of streptococci causing rheumatic fever which are spread via the larynx, pharynx and throat. The Rio Grande do Sul doctor also said that the United States, which has been doing research on a bivalent vaccine for 15 years, has not achieved any positive results to date.

Heart Damage

In the opinion of Achuti, the major consequence of rheumatic fever which is not treated in the school age is damage to the heart valves, which becomes manifest in the adult age. As long as rheumatic fever is promptly treated with penicillin shots, it will be easily eradicated, assured the specialist.

Health Minister Paulo de Almeida Machado himself stated that rheumatic disease is reaching considerable proportions in the country, creating concern about public health. For that reason, it will be given priority in the study of cardiovascular diseases currently on the list of the National Chronic-Degenerative Disease Division of the Ministry of Health.

DISCREPANCIES IN REPORTED TYPHOID CASES IN PARANA REVEALED

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 25 Mar 77 p 19

[Text] Although the sanitary district of Maringa acknowledged that 44 persons suspected of having typhoid fever--12 of whom proved to have it--had been hospitalized in the city since the end of February, Arnaldo Busato, the health secretary of Parana, asserted yesterday that the situation is under control and there is no cause for concern.

The general mood in Maringa, however, is one of tension, mainly because the information about the number of cases is totally contradictory and the sanitary authorities themselves quote figures which are inconsistent. The health secretary himself acknowledged the occurrence of only 6 cases of typhoid fever, while the doctors of Maringa said there were 12. There is also a discrepancy with regard to the patients confined at this time: according to the sanitary district, there are three, the health secretary asserts there is only one, and the doctor in charge of the Roberto Perez Hospital of Maringa refuses to say how many persons are hospitalized with typhoid fever, although the employees say there are several cases.

To aggravate the climate of tension, to date the sanitary authorities have not been able to identify the cause of the outbreak of typhoid fever. Inasmuch as the majority of the patients worked for the Central Portuguese-Brazilian Meatpacking Plant (Frigorifico Luso Brasileiro Central), an analysis was made of its water supply and the result failed to show the presence of the bacillus which causes the disease. Now the test is being made on the wells of homes which are not supplied by the water system.

The theory that the disease could have been contracted in Mato Grosso, where a large part of the patients worked, was rejected by Secretary Arnaldo Busato. According to him, the basic source of contamination is water and food prepared with polluted water. The Animal Foodstuff Inspection Department also examined the processed meat, and the results were negative. Nevertheless, the employees of the meatpacking plant will be examined, "because a person can harbor the agent of typhoid fever in his body," explained the doctor, "without being sick."

TYPHOID CASES REPORTED IN FLOODED CEARA CITY

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 2 Apr 77 p 17

[Excerpt] The situation remains serious in Itapipoca, 138 kilometers north of Fortaleza, where the Nacao Dam broke day before yesterday. The waters have started receding, but the doctors of the city have already diagnosed some cases of typhoid and influenza, while the 3,000 doses of vaccines sent by the Health Secretariat of Ceara were running out. The number of victims totals 650, and soldiers of the 3d Military Police Company disclosed that 35 persons are missing after the flood.

Prefect Geraldo Azevedo fears that the diseases will spread, mainly because the majority of the cesspools of the districts of Boa Vista and Fasendinha--the most affected by the waters--are open.

Yesterday, the prefect spent the whole afternoon in the waiting room of the office of Gov Adauto Bezerra, trying to meet with him without success. According to a source in the Executive Mansion, the governor could not receive the prefect of Itapipoca because he had to keep "urgent and decisive" contacts with Brasilia and attend the funeral of a former deputy.

To placate Azevedo, Bezerra's aide suggested that the prefect go to the Health Secretariat to appeal for more vaccines, but the latter answered that he had come from there.

RESULTS OF TUBERCULOSIS CONTROL PROGRAM VIEWED AS SATISFACTORY

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 3 Apr 77 p 41

[Text] Brasilia--Statistics of the Ministry of Health do not confirm the unofficial report of Minister Paulo de Almeida Machado that tuberculosis has subsided in Brazil during the past 3 years. While authorities connected with the Tuberculosis Control Program accept as true a drop from 500,000 to 300,000 patients and from 30,000 to 20,000 deaths a year as a result of the disease during the 1974 to 1976 period, data from documents relative to national health policy warn about statistical errors inasmuch as they note that 100,000 new cases of the disease showed up in 1974, of which only 40,000 cases were officially registered.

With regard to prevention, however, the health authorities have obtained results which they consider satisfactory by means of [going into the interior with] the Tuberculosis Control Program started 2 years ago. The technique of simplified diagnosis was introduced, which, according to technician Carlos Alberto Flourentino, is making it possible to cover 80 percent of the Brazilian population. The diagnoses are performed in only 15 minutes, and the treatment does not require confinement or isolation of the patient except in very serious cases.

To phthisiologist Flourentino, a pioneer in that work, it is possible to contain the disease in the country, although its eradication is remote because information from the Ministry of Health indicates that 50 percent of the Brazilian adult population is infected, and could become ill at any moment if their living conditions turned precarious or if they contracted other infectious diseases.

Carlos Alberto Flourentino accepts as valid the statistics regarding the drop of cases from 500,000 to 300,000, and even believes that the decrease would have been greater if the Tuberculosis Control Program were sanitarily and administratively organized in all the states. In that manner, the respective

governments could make sputum tests on all persons seeking treatment at the various clinics and hospitals, whether affiliated with the National Social Security Institute (INPS) or not, for cough and expectoration lasting longer than 3 weeks, symptoms which produce positive diagnoses of tuberculosis in 6 percent of the cases.

"The test is simple," says the doctor, "and the diagnosis is ready in 15 minutes, all that is needed afterwards is for the hospitals to process the patients for ambulatory treatment; but that system exists--and even then, partially--in only six units: the Federal District, Rio Grande do Sul, Espirito Santo, Parana, Santa Catarina and Maranhao."

A microscope, which costs about 15,000 cruzeiros and can be used by a layman following instructions, will suffice to make the tests, added Fluorentino. And as to the treatment, he advises that it can be effected with a number of fast-acting medications--such as hydrazide, letreptomycin and rifampicine--which are supplied free of charge by the Drug Center. For prevention, there is the BCG oral or intradermal vaccine, which immunizes more than 80 percent of the population of up to 14 years of age.

"With that series of procedures," points out the phthisiologist, "sanitariums, which spend up to 85 percent of the funds allocated to the control of the disease in the country, practically become unnecessary. I even believe that by 1980, the 20 existing official or government-supervised sanitariums will have disappeared or will be transformed into general hospitals because only 5 percent of the patients will need to be hospitalized, which can be done in other institutions. An appreciable reduction of those beds has been taking place for 4 years, at a rate of 10 percent."

Carlos Alberto Fluorentino also believes in the trend to discontinue the use of X-ray machines, which, besides being very expensive, do not develop perfect pictures and produce a number of shadows that can interfere with the diagnosis. He said that a simple, nonspecific pneumonia scar could even be interpreted as tuberculosis, an unlikely supposition with the sputum test, which permits an accurate diagnosis.

The Tuberculosis Control Program performs three basic activities which have reversed the traditional position of medicine. The first is the active search for new cases of the disease through sputum tests in instances of respiratory symptomatology (those who present a history of cough with expectoration for more than 3 weeks). The second is the ambulatory and chemotherapeutic treatment of patients with medications which even eliminate the possibility of the transmission of the disease from the second fortnight after the start of the treatment. And the third is the prevention accomplished by means of the BCG vaccination of children and youngsters up to 14 years of age. Revaccination is effected during school age to prolong the effect of the immunizer, which is 80 percent effective and lasts for 15 years.

Vaccination with BCG, considered by sanitary authorities to be an important weapon in the control of tuberculosis, attained 80 percent of the goal established by the Ministry of Health for 1975, when 2,258,000 doses of the oral vaccine were distributed for administration to newborn children, and another 250,000 doses of intradermal BCG for the student population.

Prevention becomes much more important in the light of the report of the Ministry of Health that half of the Brazilian adult population is infected. This makes eradication a very remote prospect, according to Carlos Alberto Fluorentino, because in order to attain that goal, it would be necessary that there be no additional infected persons, something which will be possible only when all the states take cognizance of the problem and join the tuberculosis control programs.

MEASLES OUTBREAK SPREADING IN PARA

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 14 Apr 77 p 18

[Text] Belem--An outbreak of measles which is spreading in Vila Cruzador, a fishing village in the municipio of Marapanim, on the Atlantic coast of Para, has already caused the death of 14 persons. But despite the large number of afflicted persons--in proportion to the 500 inhabitants of the place--the Health Secretariat of the state, which has already sent vaccine and doctors to the village, yesterday declared in Belem that the outbreak is isolated and completely under control of the sanitary authorities.

Health Secretary Manoel Ayres explained that the occurrence of sporadic outbreaks of measles in Para should not be attributed to ineffectiveness of the vaccination which has been carried out throughout the state and attained indices even surpassing those required by the Ministry of Health, but to geographic and cultural problems. According to the secretary, the sanitary teams confront not only difficulties in reaching the majority of the settlements in Amazonia, but also the great objection of the people to the vaccine.

Manoel Ayres recalled that an outbreak of measles recently registered in the settlement of Camara, on Marajao Island, could not be prevented either for identical reasons: when one of the teams going through the interior managed to reach the settlement, the children fled in fright when they noticed that the vaccine was injectable. They, as well as the adults, would hide or climb trees for fear of the vaccine, finished saying the secretary.

Deaths caused by measles have been increasing in Para since November of last year, but the situation is still within the projections made by the secretariat. Up to that month, the number fluctuated between 80 and 90 cases, but since the start of this year, they have gone as high as 132 deaths this past February. In 1976, the Health Secretariat of Para vaccinated 74,000 persons against measles, about 149 percent above the projected goals, which was 39,000 persons.

FUNAI TO COMBAT TUBERCULOSIS AMONG INDIANS IN RONDONIA

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 1 Apr 77 p 18

[Text] Porto Velho--Tomorrow, the National Indian Foundation (FUNAI) is starting a campaign among the Surui Indians in Sete de Setembro, Rondonia, to eradicate tuberculosis which has already affected more than 100 natives. The task will be performed in cooperation with the National Tuberculosis Department, which has assigned a team of three doctors, two nurses and a woman bio-chemist.

In Porto Velho, the FUNAI did not mention the exact source of the disease, alleging merely that tuberculosis perhaps originated from the contacts sustained between Indians and whites in the villages of Espigao d'Oeste and Cacoal, close to the post. The job of eradicating the disease had been started a year ago, but it was suspended. Now the FUNAI is trying to have the National Tuberculosis Department conduct a survey of all the Indians to prevent the spread of the disease. The medical team will spend 5 days vaccinating and examining the Indians.

Topographers of the Goiania firm of Plantel, in charge of the demarcation of the Sete de Setembro post, fear that some problem may arise with the Zoros-cabecas-secas Indians who roam over that area.

DRUG SHOWS 95% PROBABILITY OF CURE OF SCHISTOSOMIASIS

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 8 Apr 77 p 12

[Article by Marielza Augelli]

[Text] Oxiamniquine, the drug experimentally used to combat schistosomiasis, displays a 95 percent probability of cure in addition to not having the side effects of medicines employed heretofore. That conclusion was reported to Health Minister Almeida Machado as one of the principal results of the test conducted by the ministry in Santo Antonio das Trempes, a village of 604 inhabitants in the interior of Pernambuco, which is one of the nine places visited by him in the past 2 days, as well as the main object of his trip.

While going over the states of Alagoas and Pernambuco, Almeida Machado listened to the requests of the population, received honors, and made several promises, such as to provide new sewer and water systems.

Program to Reduce the High Index of Schistosomiasis

Santo Antonio das Trempes is merely one of the 317 places in Pernambuco where the Special Program to Combat Schistosomiasis, which seeks to reach 1,242,393 inhabitants, is being put into practice. But the village has one of the greatest indices of schistosomiasis recorded in Pernambuco: 80 to 90 percent of the population is infected with Schistosoma mansoni, the parasite responsible for the disease.

Solon Camargo, assistant of the Superintendency of Public Health Campaigns (SUCAM) of Pernambuco, explains that the treatment of patients--such as in the area of Touros and Maxaranguape, in Rio Grande do Norte, where 30,000 persons are being assisted--is done with the medication Mansil, based on oxiamniquine, "a drug which has been already fully tested, showing that its side effects are much less than those of the etrenol used prior to this. A single dose, proportionate to the weight of the patient, is sufficient to do away with the disease. And there are no protracted reactions--we verified that the people feel only a little dizziness, headache and, occasionally, nausea."

Actually, the inhabitants of Santo Antonio confessed that they felt "drunk" after taking the capsules or the syrup, which is prescribed for children under 23 kilograms of weight, but they generally said that they felt well.

According to Solon Camargo, the remedy shows a 95 percent cure probability, and, what is more important, the treatment is coupled with a series of other activities in which basic sanitation and sanitary education will provide an improvement in the living conditions of the population.

The inhabitants of the small village of Santo Antonio das Trempes--150 kilometers from Recife, isolated in the forest area of Pernambuco and intersected by the Caja, Tanque and Santo Antonio rivers--witnessed 5 months ago the arrival of the sanitarian doctors who asked questions, disapproved of the use of river water for bathing, domestic needs and particularly drinking, and built masonry outhouses which were better than the majority of their homes, built of mud and straw.

"It was difficult to understand what that crowd of people came to do in our village, but now I know that the river has snails, that latrines are being built, and that we are going to use water which comes out of taps," says Maria do Garmo e Santos, 60 years old, 20 of which have been spent in Santo Antonio.

In a few words, she explains the three activities of basic sanitation, sanitary education and fight against the snail in the rivers, which the Ministry of Health is carrying out in that place, to where Minister Paulo Almeida Machado and his staff will head this week to start a new phase: that of the treatment of the patients with doses of Masil syrup and capsules.

The village was in a festive mood this week. Everyone was wearing Sunday clothes, carrying small Brazilian flags and, while awaiting the arrival of the officials since 0900 hours on Wednesday, 560 inhabitants were receiving treatment from four "large medicators."

Santo Antonio das Trempes has 143 houses distributed among its six streets on the bank and the margin of the river. According to a study of the local population made by sanitary instructors, the majority of the dwellings are made of mud with a cover of straw, and the rivers were polluted with all sorts of excrement and refuse. Since last week, however, the village has

piped water in all the homes, showers, washing facilities--a set of washtubs in the center of the settlement--and latrines. "Without that work, nothing will be accomplished by treating the patient. And we still will have to teach the people to make adequate use of all those facilities," said one of those in charge of the sanitation program.

Jose Carlos da Silva, 14 years old, a 3d grader and also one of the workers in the canefields surrounding the village, is one of the patrolmen. He explains his job: "I have to remonstrate with the people against defecating in the river. The health personnel does not want clothes washed there, and also youngsters cannot bathe in it. The river has germs and my friends already know it."

The importance of the activity of the patrolmen, according to Rosa Pavonne Pimont, special guest of the MED [expansion unknown] to work with the Special Program to Control Schistosomiasis, goes far beyond the activity against the disease. "The main objective is to stimulate the children to participate in the health effort of the community, and they are currently cooperating even in the task of collecting fecal samples. The student population of 7 to 14 years of age is also being examined. In the 17 municipios of the forest area of Pernambuco, 7,627 children have undergone stool-culture tests."

The phase of control of the snails was also begun in Santo Antonio. Only 66 positive cases were uncovered after collecting and examining 95,872 snails throughout the area. This represents a prevalence of 0.07 percent, according to Solon Camargo. However, those results do not signify that the transmission index is low, because the research ratio is more than 10,000 snails per positive case of infection.

"There were no positive cases in the brook of Santo Antonio das Tremes," reports Jose Jucieh da Cruz, regional director of the SUCAM in Pernambuco, "and the transmission index is rather high." For that reason, fighting the mollusk with the molluskocide Fiocruz 001 has been already begun in Santo Antonio das Tremes. And the very appearance of the water--greenish and dense--already repels the people, say the sanitarians.

The socioeconomic survey conducted among the 143 families of Santo Antonio das Tremes during the month of June disclosed that 70 percent of the people are under 30 years of age, and 65 percent are illiterate. The great majority of the inhabitants, including women and children over 7 years of age, depend on cane cultivation for a living, earning 20 cruzeiros per ton of cut cane. The research concluded that 33 percent of the workers earn less than the regional minimum wage, which is 544.80 cruzeiros. To earn little more than 500 cruzeiros a month, the members of a family work more than 12 hours a day.

Despite the extremely bad living conditions observed, the research determined that the families consume 2 kilograms of meat a month. But the local inhabitants lack, for instance, medical assistance. They treat their ailments with home remedies. Of those interviewed, 92 percent avowed they did not want to

leave the village, while the remainder adduced as a reason for a possible departure the fact that they "live continually ill." As a matter of fact, 57 of the 143 families surveyed have ailing children. Moreover, 25.2 percent of babies are stillborn and 27.6 percent die within their first year of life.

The sanitary instructors also ascertained the ideas that the people have about schistosomiasis. In October of last year, when the study was made, 53.3 percent of the families knew nothing about the disease. Among those who knew, 44 percent called it "water belly," 4.8 percent said that the disease came from a snail named "arua," and 21 percent asserted that "the 'xistosoma' is caught through worms or germs."

HEALTH MINISTRY TO EXPAND PROGRAM TO COMBAT CHAGAS DISEASE

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 12 Apr 77 p 22

[Article by Marielza Augelli and Freitas Neto]

[Text] Starting in May, the Ministry of Health will expand its program to combat Chagas disease, currently limited to an experiment, beginning with the improvement of the precarious rural dwellings of the Northeast, the endemic area of the disease. No less than 10-to-35 percent of the Northeastern rural dwellings harbor the "barbeiro" [Conorhinus, syn Triatoma, megistor], the insect which transmits Chagas disease.

After the experiment conducted in the town of Santa Efigenia, 132 kilometers from Alagoas [sic], the Public Health Services (SESP) Foundation now intends to improve more than 50,000 dwellings in 27 municipios of six Brazilian states --Pernambuco, Alagoas, Sergipe, Rio Grande do Norte, Paraiba and Bahia. The job will be done within a period of 3 years, at a cost of approximately 590 million cruzeiros.

In Alagoas, the SESP teams will start working in two municipios of the forest area: Capela and Uniao dos Palmares. The mud and thatch houses will get roofing tiles, plaster and paint on the walls, concrete floors, as well as a thorough cleanup and disinfection. In other states, as explained by Foundation President Aldo Villas Boas, the proposed municipios will be the same where the Special Program to Control Schistosomiasis was begun with the basic sanitation task--supply of water, installation of latrines and sanitary education of the population.

According to a survey of the endemic regions of Chagas disease which the Ministry of Health has been conducting for a year now, about 20 million Brazilians are exposed to the infected "barbeiro" in an area estimated at 2 million square kilometers. To the specialists of the Ministry of Health, the eradication of the "barbeiro" and the control of the disease are indirectly related to the improvement of the dwellings. "Nothing is gained by merely

spraying the small thatch-roof huts with BHC insecticide," says Also Villas Boas, "because they return to the homes in a short time, proliferating in the straw and the cracks in the mud."

The national program to control Chagas disease begun in 1975 comprises three phases: geographic survey of the work area--with a census of towns, settlements, houses and abodes--in order to determine, with the *Triatoma* investigation performed at the same time, the infection index of the transmitters; spraying of houses and appurtenances; and improvement of dwellings in the more precarious areas, where vigilance against the disease becomes systematic.

The phase of improvement of rural habitation was initiated with the pilot program implemented in Santa Efigenia, in the forest area of Alagoas. Santa Efigenia, 132 kilometers from Maceio, presented a 30 percent index of prevalence of the "barbeiro" in the 1976 dwellings which make up the town. In July of last year, following a study of the living conditions of the population--the great majority of them employed in the sugar cane farms and mills of the area--more than 50 employees of the SESP of Alagoas started the work of improvement. Exactly 177 houses were improved out of 180 houses occupied by about 900 persons.

"The first step was to explain to the people the importance of those improvements," explained Alagoas Director Luna Torres. Many did not believe that the authorities merely wanted to improve the condition of the houses without getting something in return. Finally, after several meetings with the population, the occupants themselves offered to help with the improvements.

One of the main problems to be resolved at the outset of the work, relates one of the members of the team, was the increase in rent that eventually could be charged to the people after the improvements. The SESP itself, however, intervened so that nothing would be charged. On the other hand, work is continuing on the scattered farm dwellings and is receiving the assistance of the farmers, although it comes to only 40 percent of the expenses.

BURMA

PREVENTION OF PLAGUE DISCUSSED

Rangoon THE WORKING PEOPLE'S DAILY in English 9 Mar 77

[Text] A coordination meeting for suppression of plague was held this afternoon in the meeting hall of Rangoon Division Health Department.

The meeting was attended by Deputy Director U Thaung (Disease Control) of the Health Department, Assistant Director U Min Swe (Health Education),

Rangoon Division Health Officer Dr U Hla Myint, Epidemiologist Daw Ohn Kyi and other Health Department officers.

Divisional Health Officer Dr U Hla Myint reported the plague situation in Hlegu to the meeting. He explained that plague could break out after about 10 days of finding of dead rats with plague germs. If the findings of dead rats were reported in time, necessary action could be taken to prevent an outbreak he said.

Deputy Director U Thaung also stressed the importance of receiving reports of dead rats in time and prompt chemical examination of the dead rats for effective prevention of outbreak of plague.

Epidemiologist Daw Ohn Kyi outlined measures for prevention of plague, such as weekly chemical examination of five rats in each township, spraying with DDT the haunts and nests of rats and immediate sending of persons suspected to have plague to the Infectious Diseases Hospital.

After U Min Swe explained the scheme to launch a national campaign against plague, the meeting terminated.

Rangoon THE WORKING PEOPLE'S DAILY in English 10 Mar 77

[Editorial: "Rat Eradication Urgently Needed"]

[Text] A coordination meeting for the suppression of plague was held a few days ago by the Rangoon Division Health Department. This came in the wake of similar meetings held in Hlegu, just 27 miles by road from Rangoon, where plague had been detected.

At one time in the past, any kind of report about outbreak of plague would have sent shock waves of panic rippling through entire populations. But today thanks to modern drugs and effective treatment techniques, plague no longer holds the same kind of terror as it once did. Contracting the disease no longer means inevitable death. Even when an outbreak is detected late, it can be contained and quickly stamped out.

But the question is why should plague or any other epidemic disease of this kind break out at all? After all, medical science already knows practically all there is to know about the ancient diseases like cholera, small-pox and plague which scoured mankind. Knowing the roots of these ancient diseases, we are well in a position to take adequate steps for total prevention.

From any point of view, preventive measures are invariably cheaper and more convenient than belated steps taken only after outbreak of disease. Treatment of those taken ill and eliminating disease sources through use of appropriate chemicals cost money and take time, while the quarantines which may have to be imposed if the threat becomes too serious, means great inconvenience for the public.

All this can be avoided through simple preventive measures in which sustained cleanliness and sound hygiene are the basic elements. Cleanliness does not cost much if it becomes a habit on the part of every member of the public. All it requires is a little bit of physical exertion in systematic disposal of garbage so that what is thrown out of the home will not become forage for disease carriers such as rats.

Unfortunately, the sense of cleanliness evident today among the public does not seem to extend beyond their own homes if at all. The fact is that impeccably clean homes mean nothing at all in terms of disease prevention if garbage piles up outside for the breeding of disease-carriers.

It is true of course that frequent clean-up campaigns have done much to awaken public awareness simply because they are called upon to clean up the mess they have created if not for anything else.

Under the circumstances we cannot help feeling that there is a need for even greater and more meaningful public awareness than what has so far been achieved. The measure of just how much more awareness we need may perhaps be judged by the proliferation of rodent populations in all congested residential areas.

From the point of view of disease prevention, the ultimate aim of all cleanliness should be to deny sustenance to disease-carriers and thereby to eliminate their existence.

In this context we have noticed that though the public has been frequently called upon to participate in clean-up campaigns, so far as we know, there has not been similar campaigns to take direct action to eliminate rats where they are known to exist. Undeniably, there may be some who are squeamish about killing. But at the same time we are sure that there are enough people who fully understand the need to get rid of rats as a means of preventing disease. And it should not be too difficult to procure the participation of a sufficient number of people in rodent eradication campaigns. Carried out regularly in conjunction with the clean-up campaigns, eradication work as a mass movement should contribute much towards lessening the threat of plague.

CAMEROON

ELIMINATION OF CAMEROON LEPROSY PREDICTED

Yaounde CAMEROON TRIBUNE in French 29 Jan 77 pp 8-9

[Article: "Special World Lepers Day--Total Eradication of Leprosy in Cameroon Within 38 Years, Says Dr Hamono]

[Excerpts] Tomorrow, Sunday, 30 January 1977, is the 24th World Lepers Day. At Yaounde the ceremony was being prepared and all was ready to give the

event a special character. The importance of the occasion was brought out by Dr Hamono, Chief Physician of the No. 1 Epidemiology Sector and Chief Physician of the anti-leprosy section, and by his assistant, Dr Tchekanda.

In the course of an interview with these officials, we took a bearing on the present situation in the struggles. The effort being mounted by the government and some international organizations such as WHO was made manifest.

Raoul Follereau deserves credit for having founded the World Lepers Day in 1954. He has worked on leprosy for 50 years. In the course of his many trips he was forced to the conclusion that lepers tended to be put to one side and considered, not as full citizens, but as marginal beings. He undertook his struggle in order to integrate them into normal life in society, seeking first to have patients with leprosy given the same quality of medical care as others, with their human dignity respected.

The services of the Great Endemic Diseases were organized to combat leprosy. The patients, instead of hiding themselves as before, came en masse to receive treatment. This new concept of the disease had its effect on the statistics of leprosy. Thus the number of lepers counted in the census increased considerably. In Cameroon, for instance, it rose from 19,381 lepers in 1956 to 57,128 in 1968. That was the ceiling; then the statistics showed a constant reduction. Thus, according to Dr Hamono, there were less than 50,000 lepers in Cameroon in 1971 and less than 4,000 in 1976. At present 6,723 lepers are under observation without treatment. These patients will be declared definitely cured if after two years under observation without treatment they show no further symptoms of leprosy. The conclusion: "Leprosy is a disease that may be completely cured," Dr Hamono told us.

EAST GERMANY

INFORMATION SUPPLIED ON IMMUNIZATION PROGRAM FOR CHILDREN

East Berlin PRESSE-INFORMATIONEN in German 8 Mar 77 p 2

[Article by Prof Dr Ludwig Mecklinger, senior medical counselor, GDR Minister of Health]

[Text] WHO's slogan for 7 April this year, "Protect Your Child Through Vaccination," is an occasion for looking in this respect at the situation as it is in our country. Following the Soviet example, we have been trying to take care of our young generation more and more comprehensively. Starting with the care for prospective mothers, the various state organizations, in close cooperation with those of public health and social welfare, are standing behind the growing generation. The reduction in infant mortality in 1976 to fewer than 15 out of every 1,000 live births testifies to the success in these endeavors.

Vaccinations for girls and boys constitute an important part of our extensive health protection service for children and youths. We are proud that our young pediatricians no longer know from their own personal experiences such diseases as poliomyelitis, diphtheria and tetanus, and that only infrequently they come across cases of measles, whooping cough and almost no new cases of tuberculosis.

And then also the shots given to people traveling in tropical and subtropical countries helped protect the GDR from non-domestic infectious diseases. Prophylactic vaccinations against rabies, when wounds were inflicted, also have been successful. Only three persons have contracted rabies within the last 15 years.

Meeting the Tasks Scheduled on the Immunization Calender

Through its results in eliminating infectious diseases by means of vaccinations our republic has gained an internationally recognized position. To hold on to this position with regard to poliomyelitis, diphtheria, whooping cough, tuberculosis and tetanus, the tasks posed on the immunization calender have to be met rigorously and on schedule. That is a need that will be with us for many years to come, as it results from the epidemiological situation of these diseases in the world.

Major emphasis has been placed on vaccinations against measles, made mandatory in 1970, and this dangerous infants' disease has been greatly contained. But the virus causing this extremely rapidly spreading disease is still around. This calls for continued vigilance. An extensive scientific examination program continuously has to make sure that at least 95 percent of all newly born infants in any given year are vaccinated in time, the immunity of infants born earlier holds up, and the vaccination gaps are closed systematically. To stabilize the successes achieved through vaccinations one will have to continue making the same efforts as during the vaccination campaign against measles in recent years.

Well focused research has been calling attention to vaccinations. Late in 1976, clinical tests were resumed for the further developed vaccine against mumps. Consideration has been given to introducing gradually, beginning in 1978, vaccinations against mumps for all children in our republic.

Close Cooperation With the Fraternal States

Similar successes have been achieved in the friendly and fraternal socialist countries, due to social conditions and the uniform public health system organized by socialist principles. The close cooperation has been the cornerstone in these successes. The GDR owes its programs for the elimination, or containing, of poliomyelitis and measles to its close cooperation with the Soviet Union. For the further development of the mumps vaccine, a trilateral research cooperation among the institutes of the GDR, the USSR and Bulgaria has proved itself successful.

Right now, specialists of socialist countries are conferring on the main themes for their collaboration within the framework of CEMA's standing commission on public health from 1977 to 1980. Questions of how to organize the immunization program are given special attention.

The outstanding results in socialist health protection should not make us ignore the fact, however, that the vast majority of children in the world remains without immunization programs, or at least without systematic ones. Poliomyelitis, tuberculosis and measles, along with other dangerous infectious diseases, are still devastating in most countries of Asia, Africa and Latin America. And even those countries of the capitalist world that are, in part, highly developed technologically, are on very uneven and often on appalling levels, so far as the health and social care for the young generation is concerned.

WHO chose its 1977 slogan to bring out how important a systematic immunization program for all children in the world is, as the first step in effectively fighting against infectious diseases. The GDR, ever since its founding, has mainly supported the young national states in their health efforts and always thought of it as one of its most noble tasks. Ever since we entered WHO, we have supported the special programs of the organization by donations, primarily of vaccine, and by dispatching experts and by conveying our own experiences. The German Red Cross of the GDR has shown international solidarity in many different aid operations. The slogan "Protect Your Child Through Vaccination" will continue to find our fullest support.

Incidents of Illnesses

Diphtheria	Whooping Cough	Infantile Paralysis
1946: 96,573	1963: 34,449	1947: 2,228
1976: none	1976: 168	1976: none
Measles	Tuberculosis (new incidents)	
1964: 94,567	1949: 107,227 (in children and adults)	
1976: 3,684	1976: 34 (in children only)	

ECUADOR

COMPULSORY SMALLPOX VACCINATION SUSPENDED

Quito EL TIEMPO in Spanish 26 Feb 77 p 2

[Text] By means of Resolution #7370, the Ministry of Public Health decided to suspend the requirement of anti-smallpox vaccination in view of the fact that there have been no cases of the disease in the country since September 1963.

Smallpox was endemic until 1963, some 4,933 cases having been registered in the 5-year period between 1958 and 1963. The greatest number of cases (2,185) occurred 17 years ago, at which time the rate reached 51.6 cases per 100,000 inhabitants.

Success of Massive Vaccination Campaigns

The government of Ecuador started an all-out fight against smallpox in 1958 by means of massive vaccination campaigns which proved successful. It is estimated that with the technical assistance of the experts of the PAHO and the WHO, it immunized 3,541,989 persons from 1958 to 1964.

The incidence of smallpox in Ecuador has followed a favorable course, in keeping with the development of the general vaccination program.

The morbidity, which in 1960 reached a rate of 51.6 per 100,000 inhabitants, has been kept at 0 since 1964 as a result of the attack, support and vigilance being carried out in the country.

The resolution, adopted on the 23d of the current month, was endorsed by Dr Asdrubal de la Torre, minister of public health.

HUNGARY

BIRD STUDIES AND VIRUSES

Budapest MAGYARORSZAG in Hungarian 27 Mar 77 p 15

[Text] Wild birds can provide an alert to the approach of infectious diseases. Flu viruses are often detectable on them sooner than on man. Because of this, ornithologists regularly catch large numbers of them and release them after making an examination. Results obtained at various inspection points in the GDR are forwarded to the Epidemiological Center of the state hygienic supervision in Potsdam for evaluation. Used together with other alerting systems, they make it possible to become aware of an approaching influenza epidemic in time. The head of the Center stated that scientists in this field cooperate closely with their Soviet colleagues. Together with the Moscow Institute of Virology, scientists put the experiences acquired in the two countries into the service of practical immunization. The two research centers have adopted uniform methods in the interest of better control and prevention of infectious diseases. The [Potsdam] Epidemiological Center which was established a year ago also cooperates with Soviet associate institutions in other fields. One such field is work distribution and specialized research in the field of immunization.

IRAN

2800 RURAL CLINICS WILL BEGIN OPERATIONS

Teheran ETTELA'AT in Persian 28 Feb 77 p 24

[Text] In order to provide health and medical coverage for the country's rural dwellers, 2,800 rural clinics, health houses and medical treatment centers will be constructed in the country's villages during the coming year, and villages close to one another will also establish district emergency centers.

Dr Sheikh-ol-Eslami, Minister of Health and Welfare, announced in a speech that the Ministry of Health and Welfare's budget will increase 30 percent as compared to last year and that this, itself, shows the government's concern for the health and medical treatment of this country's people, especially the villagers. He pointed out that the social insurance program for the villagers, the objective of which is to cover the villagers from the standpoint of social insurance, will become effective next year and, from the standpoint of medical insurance, which right now is 650,000 people, will increase to 1.2 million people next year.

Regarding the research programs for improving the quality of the health and nutrition operations, the Minister of Health pointed out that research on the production of biological products and vaccines will continue, the pathobiology laboratories will be provided with new equipment, and a research program will be conducted to determine the condition of society's food and changes in it. He also stated that, in carrying out the health and medical services program for the villages, during the next year use will be made of 1,800 rural clinics, and 200 new rural clinics and health houses will be equipped. Moreover, 800 health houses and health and medical centers will be constructed in the country's villages.

In accordance with the programs devised to meet medical emergencies, emergency medical centers will be organized to serve villages located close to one another and subdistricts.

IRAN'S FRONTLINE HEALTH WORKERS

Teheran TEHRAN JOURNAL in English 28, 29 Mar 77 p 4

[Text] Early in March last year, Shiraz played host to a workshop on 'Village Health Workers' organized by the International Development Research Center. Iranian participants in the workshop presented several papers on different aspects of the health care in Iran's rural areas. Here the JOURNAL reproduces the first in a series of papers, all of which have been published in the form of a book by the Ottawa-based Center. M. Taghi Farvar, vice-chancellor for

environmental sciences and ecodevelopment, Bu-Ali Sina University, Tehran, here discusses the issues involved in the training of frontline health workers, particularly in Lorestan.

In the province of Fars about 3 years ago, an experimental project was conceived with the object of training rural health workers quickly and inexpensively to combat the primary health and medical problems in tribal areas. Villagers with little schooling were to be trained for a period of 12 months. If successful, the model would be applied throughout the country creating a network of health services.

To this end, 31 young men and women were recruited from among the local population primarily through entrance examinations followed by interviews with a team from the Imperial Organization for Social Services. The behvarzes, as these frontline health workers came to be called, are now serving as village health workers (VHW), in three clusters of villages near health centers staffed by physicians.

The behvarzes did not serve migratory tribal populations, since the travel required of physicians to supervise them was excessive. The cost of training was higher than expected and the impact of the behvarzes on the health of their respective populations has not been measured.

Nevertheless the experience proved one thing: health workers with modest schooling could, under the right circumstances, play an important role in bridging the gap between, on the one hand, the oversupply of doctors in well-equipped clinics and hospitals in rich urban areas, and on the other, the lack of any medical or health services in rural areas. This conclusion had been reached in other countries, but it was necessary to demonstrate its validity in the Iranian context.

Two other experiments in training village health workers in Iran had begun somewhat earlier, one by the Pahlavi University Department of Community Medicine, also in the province of Fars, and the other in West Azarbaijan, which was a collaborative effort involving the Tehran University School of Public Health, the Ministry of Health, and the World Health Organization. In this report no reference will be made to these two experiments except to say that they have also demonstrated the soundness of our basic approach to a graduated health care system.

Based on the model of behvarz training in Fars, a second experiment was begun within the Selseleh Regional Development Project in Lorestan, western Iran. Here, the training of frontline health workers was considered to be one aspect of a network of interrelated services in community development. Health services, while maintaining a loose affiliation with the project, were administratively, and in fact, autonomous.

The project was within the Prime Minister's responsibility, whereas the health network was part of the Imperial Organization for Social Services, a

nongovernmental charitable organization. Both the project and the health network were ultimately responsible to the same man, a special senior advisor to both the Prime Minister and the Imperial Organization for Social Services, but this separation in the field proved to be a source of numerous problems, including poor coordination, which reduced the effectiveness both of the project and of the health network.

Before attempting to assess the achievements and problems of this experiment, it would be interesting to describe the salient features of the approach used in Lorestan. The project is being carried out in part of the Selseleh district, north of Khorramabad, with a population of between 35,000 and 40,000 semi-nomads. The basic premises of the project were that through the training of local cadres, participation, research, and a type of endogenous development process would be set in motion in which the main emphases would be on:

(1) people, both as the instrument and object of development; (2) participation, through which the focal population would be involved in cooperative activities and decision-making; (3) local human and natural resources, fostering self-reliance designed to eliminate excessive dependence on outside initiative and resources; (4) integrated growth and development; and (5) orientation toward the majority of the population who have usually been denied the benefits of progress.

In spite of a number of management and other difficulties at the outset, the training of four groups of frontline workers in health, education, agriculture/animal husbandry, and women's activities was begun between the autumn of 1974 and the summer of 1975. During August 1975, a common training program was carried out for all trainees. By this time the rural education group had completed about 9 months of training, the health workers about 6 months, and the agricultural extension workers 4 months. The women were still being recruited, though most were still in their villages.

Prior to the common training program the health workers had had a 2-month theoretical training program and a 4-month practical training period. The theoretical training program included: general knowledge of human anatomy and physiology; personal and community hygiene, environmental sanitation; history-taking, physical examination, and record-keeping; the health network and the referral system; disease etiology; injections and dressing; first aid and emergency cases; medical statistics; and some aspects of traditional and herbal medicine.

Following this theoretical training, the practical training program included supervised work, mostly in the health centers, with some visits to villages in the area for purposes of observation, practical training, and administering vaccinations. In addition, a 2-hour class was included, every afternoon, on the following subjects: family planning; maternal and child care; normal obstetrics; food hygiene; elementary dentistry, including tooth hygiene and took extraction; common local diseases; filling out health certificates; preventive medicine and vaccination; medical and social statistics; and elementary sociology. Finally, in addition to the month-long common training

program that will be described briefly later, an "internship" program was planned for the behvarzes, mostly to give them extensive clinical training.

Some epidemiological research was done by the behvarzes during their training, with extremely satisfactory results. The work was of publishable quality, and could form a significant basis for planning health services in any area with virtually nonexistent epidemiological or demographic data. This approach would also be useful for evaluating the impact of village workers and primary health care in remote areas.

A second innovation was a habitat management program for malaria control in the area. In spite of nearly two decades of intensive indoor DDT spraying, malaria has not been eradicated in this area and has recently been on the increase. The behvarzes and other frontline workers were involved in simply habitat management activities for anopheline mosquito control.

Another innovation was in the area of recycling and waste management. A pilot methane production plant was set up that converted cow dung--the main fuel in the area--to methane gas and organic slurry. The clean methane gas, or biogas, can supply most fuel needs of rural populations. The heat value of this gas is about two and one-half times greater than that gained from burning dried dung cakes. The slurry is the best organic fertilizer available and returns essential organic material to the soil. In addition, the production of methane helps solve a major public health problem by improving sanitation since human excreta and other organic wastes can also be processed in these plants.

Our pilot biogas plant was located near the common training camp, enabling the health workers and other trainees to become familiar with the processes involved. Further research is needed on the biogas to make its production practical on a community scale, but our experience so far shows that villagers are willing to have community-run cooperative biogas plants that could guarantee everyone's needs, irrespective of the number of cattle they each own.

The most significant differences between the Lorestan and Fars health network were the following: (1) in Lorestan, health care was considered as one component in a total development approach, and (2) health was considered a basic right of every inhabitant of the region. Thus, the region was divided into 26 subregions, each with a population of about 1,000. In the selection of trainees, care was taken to have equitable subregional representation, except by women who were mostly from the town of Alashtar, since there are few schooled women in the rural areas.

In spite of the significant conceptual differences compared with the Fars experience, many shortcomings also affected the program. Some of these will be examined here.

The lack of administrative coordination has already been mentioned. The problem was very serious and should be avoided at all costs in future projects.

It meant that in practice the physicians--and hence the behvarzes--were not necessarily subject to the policies governing the development project; there was an unwritten but de facto mutual nonintervention treaty, and it made it very difficult to put the main emphasis on prevention and other nonclinical prerequisites of health. Even within the health network per se there was a lack of coordination between the main health center in Alashtar and the supposedly affiliated one in a nearby valley.

The recruitment of the 35 behvarzes was done in much the same fashion as in the Fars program, that is, primarily by means of multiple-choice examinations. Moreover, the announcements for enrollment were sent out to the villages through the office of the district governor, who in turn asked the gend'armes under his control to distribute the leaflets. The fact that recruitment was carried out in the difficult winter months further impeded what little contact there might have otherwise been with the local population. One result was that most of the women admitted had a slightly urban orientation.

The training program was carried out in the town of Alashtar, and consisted mainly of classroom and clinical teaching in the local health center, which had been taken over by the project-affiliated physicians. Field trips to the villages were included in the program one or two mornings a week, but these generally took the form of hands-in-pockets observation exercises.

In short, the peasant health workers were well on the way to becoming mini-doctors, complete with white-coated elitist tendencies. The young project physicians themselves did what their training had prepared them to do, by confining themselves to visiting scores of patients every morning in the health center, sometimes increasing the dependence of the local population on modern drugs and injections, and preparing the frontline health workers to do more of the same. In fact, most observers of the program agree that the behvarzes depend on and use too many modern drugs. The normal array of modern drugs at the disposal of the behvarzes include about 200 medicaments. Some of these include potent and dangerous substances.

Not enough effort was made during the initial training program to teach the behvarzes how to attack the real causes of ill health--underdevelopment, malnutrition, and poor sanitation. No notice was taken of the vast array of locally available and other herbal medicines, even though the area is very rich in them, and the population's own potential for self-care was neglected.

The common training program was partly intended to change this picture and counter elitism. It was the first time the behvarz trainees were coming into daily contact with their future colleagues in other fields, and also with the rest of the project staff. The program was intensively practically oriented, and included the cooperative construction together with the local population of rural roads, latrines, and clean water sources. It also included cross-disciplinary training.

The health workers learned about agriculture, animal husbandry, and literacy work; the rural teacher-trainees learned about public health and agriculture, and so on. The rural agricultural extension workers participated in the teaching of important subjects in their field to the other groups, and vice versa. The project staff, even including some of the physicians, participated in the practical work. All told, it was quite helpful in rounding out some of the rough edges, but not to the extent we had wished.

The behvarzes were the only group that lived in a town: even though Alashtar has only 4,000-5,000 people, its atmosphere has many urban characteristics. After the common training program, the behvarzes virtually refused to move to the rural areas.

During the last period of their training a new idea was introduced by the project staff: the so-called "three dimensionalization" of the trainees. (The women's group had been dissolved following the most recent staff changes in the project, leaving only three groups.) This meant that instead of each working in his or her own professional field such as agriculture, health, or education, the trainees would become multipurpose agents of development. Without commenting on the merits of this decision--since more exacting evaluations would be needed for that--we can say that the "three dimensionalization" program has not worked in the case of the health workers. This was, no doubt, at least partly due to the elitist and overly professionalized attitudes of the behvarzes and their physician-teachers.

One conclusion that many of us have reached is that the next time we try to train frontline community health workers it will be without heavy reliance on professional physicians. That is, we will give development a higher priority as the only proper context for health.

LEPROSY TO BE ERADICATED

Teheran TEHRAN JOURNAL in English 4 Apr 77 p 3

[Article by Irfan Parviz]

[Text] Iran has an estimated 303,000 persons suffering from leprosy throughout the country. But only 8,601 have been registered as such said Managing Director of the Iran Center for Leprosy, Dr Abbas Sanati yesterday.

Addressing a press conference he said that about 10.8 million people in the world are suffering from this disease, which is like slow poison.

Dr Sanati said that the highest number of lepers was in Asian countries, 6.7 million, followed by Africa, 3.8 million, America, 358,000 and Europe, 52,000.

Out of the total in the world, only 1.9 million have been registered and are receiving proper treatment.

Dr Sanati said that extensive efforts would be launched during the Sixth Five-Year Plan to eradicate the disease in this country.

He said the main job now before the organization was to enlist the patients. He said that in the initial stages for many years, the patient generally was not aware of the fact that he, might be suffering from the disease.

"That's the proper time to check on leprosy, before it can play a real havoc," he said.

The leprosy organization, with the assistance of the Ministry of Health and Welfare, provides facilities in the medical centers across the country for preliminary examination. In case symptoms are traced, the patients are referred to the appropriate medical authorities.

The organization hopes that all the lepers in the country can be enlisted within three years. He said the situation would be completely under control within five years.

Dr Sanati said, "If all goes well, leprosy will be eradicated in the country within 10 years."

He paid glowing tributes to Her Imperial Majesty Empress Farah who had paid special attention to the problem. He said that the Empress had ordered all-out efforts to eradicate the disease along with a comprehensive plan for the welfare of the lepers.

Dr Sanati said compared to other diseases less attention had been paid to leprosy, resulting in little research and insufficient investment in producing medicines.

He said, manufacturers were more interested in medicines which brought quick returns."

Dr Sanati called for active help of the press in rehabilitating cured lepers who should be given their due place in the society.

He mentioned various instances where cured patients had been employed in factories. He said that the fellow workers, in many cases, had refused to work with them.

Dr Sanati said that cured persons were sent to work only when they were not contagious. Society should accept them just as any other, he remarked.

Dr Sanati said two centers had been set up in Tehran for skin diseases with the most modern facilities. One such center is to be set up soon in Tabriz. Plans for two more centers have been finalized.

ITALY

MENINGITIS OUTBREAK CAUSES TWO DEATHS

Rome L'UNITA in Italian 29 Mar 77 p 4

[Article by Nadia Tarantini]

[Text] Sulmona--"We decided to close the schools as a precautionary measure." This is what we were told by the health official of Introdacqua, a village 5 km from Sulmona [Province of L'Aquila in the Abruzzi Region] in which two fatal cases of viral meningoencephalitis have been ascertained. Dr Michele Savocchio, whom we interviewed while he was giving prophylactic treatments of gamma globulin-based serum to the children of the village, said that as of yet only the viral form of the disease has been verified from microscopic evidence, whereas the type of virus is unknown. In order to determine this it will be necessary to await the test results of the Higher Institute of Health, to which brain fragments from the first child to die with the disease were sent. As an added precautionary measure, any child from the "Ancelle di Maria Immacolata" orphanage and foundling home who showed sign of a fever has been sent to the Sulmona hospital for observation.

According to the doctor, there seems to be no reason for alarm as to a possible epidemic of the terrible disease. There are currently three children who have been sent to the Sulmona hospital, and it seems that they do not show any disturbing symptoms.

Dr Savocchio made it a point to stress the "misfortune" of the two fatal cases. "We have no drugs against viruses," he said, with a measure of quiet resignation. "We can only strengthen the body's defenses, as we are doing, by inoculating the children with gamma-globulin, which consists of concentrated solutions of nonspecific antibodies."

Originally, in agreement with the provincial health officials, it was decided to give the gamma-globulin only to children up to 3 years old, but because some youngsters from the foundling home go to the elementary school, it was decided to administer the prophylactic agent to them, also. It would seem that this is the sole reason for closing the schools until Easter.

So, is everything under control? Unfortunately, some questions still remain unanswered especially because the incident occurred in a foundling home where, as is well known, official inspections always come late.

According to Dr Savocchio, the orphanage was extremely well managed: the pediatrician went there every week and, he added, "I myself gave orders to the nuns that any child who showed a fever should be immediately taken to the hospital."

However, the people of Sulmona are not entirely at ease: they believe that the hospital does not have an infectious-disease ward; that there is not even a room normally employed for "isolation" and that, consequently, the "pre-cautionary measure" put into effect currently--i.e., hospitalizing all suspected children--holds many risks.

It suffices to say that the three orphanage children under observation in the pediatric ward have a room in common, are isolated only in a rather approximate fashion, and are cared for by personnel that are the same for the entire ward.

This is one more reason to elucidate all aspects of the incident, as quickly and thoroughly as possible.

KENYA

OUTBREAK OF SLEEPING SICKNESS KILLS 10

Salisbury THE RHODESIA HERALD in English 31 Mar 77 p 3

[Text] Nairobi--At least 10 people have died in the past two months in an outbreak of sleeping sickness in the Kenyan province of South Nyanza. Health officials have warned that the disease, carried by the tsetse fly, is spreading to new areas.

LEBANON

EYE DISEASE IN SOUTH LEBANON

Beirut AL-NAHAR in Arabic 18 Dec 76 p 6

[Article by Edmond Shadid]

[Text] Nabatiyah--As if the Lebanese were not afflicted enough with evacuations, deprivations and sadness, the war also brought them diseases affecting women, children and the aged, to add to their miseries and wretchedness.

Doctors in the south noticed a disease similar to "springtime ophthalmia" which affects the eyes and which has widely spread in a number of southern villages.

The agriculture school in the town of Shukin and the teacher training school in al-Nabatiyah were transformed into collection centers for those afflicted, some of whom if they could manage, were transferred to the clinic of ophthalmologist Dr 'Ali Subayti in al-Nabatiyah for treatment.

What about this disease?

Dr Subayti described it as a "small microbe that develops in hot and unsanitary areas and is transmitted either through breathing, touch or contact, and it afflicts the skin, the membrane or inner layers of the human body. Its gravest danger is that it afflicts the eye if it were cut, causing a loss of vision and bleeding."

A Contagious Microbe

Dr Subayti explained that this disease has spread widely among the evacuees and in a large number of border villages, that each day he treats in his clinic about 20 patients, and that a number of patients unknowingly transmit the germ to others.

He also said that he sent a report to the Ministry of Health in which he pointed out the seriousness of the disease and requested the provision of necessary medicine to all hospitals and clinics in the south.

Dr Subayti advised citizens and evacuees to take additional protection.

At the clinic of Dr Subayti, Fatimah Karki, 60, of the border town Mays al-Jabal said that a large number of the evacuees in the town have this disease, many of whom are unable to travel 50 kilometers to al-Nabatiyah because of high transportation fares.

Fatimah complained about the lack of necessary medicine in the three clinics belonging to the Popular Aid, the Red Cross and the Social Revitalization organizations.

Al-Hajjah Yasmin Dhib of 'Aramta, 60, who had lost her left eye some time ago, begged Dr Subayti to care for her other eye so that she does not lose it and be deprived of the gift of sight.

MOZAMBIQUE

PRESENCE OF SLEEPING SICKNESS CONTINUES

Maputo NOTICIAS in Portuguese 15 Mar 77 p 3

[Text] The old sources of sleeping sickness in the provinces of Tete, Cabo Delgado and Nampula still persist, as confirmed by a survey conducted in Mozambique by technicians specialized in trypanosomiasis, according to the current month's issue of the Health Bulletin.

Further on, that organ of specialized information of the Ministry of Health adds, moreover, that an increase was detected of the affected area in the Majune District of Niassa Province, where some cases were diagnosed in 1976.

At this time, therefore, sources of the sleeping sickness disease which can be contracted by man exist only in the four mentioned provinces--Tete, Niassa, Cabo Delgado and Nampula--the bulletin also asserts.

PERU

DISEASE KILLS CHILDREN

Lima LA PRENSA in Spanish 9 Mar 77 p 12

[Article by Segundo Llanos]

[Text] Trujillo, 8 Mar--A disease having characteristics of an epidemic has already caused eight deaths among the infant population of Chao Valley, as reported today by Teodoro Pereda Gonzales, municipal agent of that sector of Viru District.

Prior to asking directly for the intervention of the health authorities of the midnorth zone, he said that the symptoms are high fever, cough and acute inflammation of the throat. It could be diphtheria, he said.

The deaths of children from 2 to 6 months of age occurred last week in the hamlets of La Victoria, El Inca, Puente de Chao and Buena Vista, and it is feared, said Pereda, that the disease will continue to rage.

The health zone assigned personnel from the Viru Medical Unit to take care of the situation which has produced so much alarm among the campesinos of Chao Valley.

VACCINATION CAMPAIGN AGAINST SEVERAL DISEASES IN CUSCO

Lima EL COMERCIO in Spanish 11 Mar 77 p 28

[Text] Cusco, 10 Mar--The children of the province of Paucartambo are being vaccinated house by house against whooping cough, diphtheria, poliomyelitis and tetanus in a program devised by Hospital Area #1 of Cusco.

The vaccination team of the Regional Hospital has been initially assigned to the province of Paucartambo, whose districts and hamlets are being visited to prevent the occurrence of epidemics next winter, which is now drawing close, as it happened in previous years.

Antituberculosis vaccines are also being administered in areas adjacent to the mountains in Colquepata, Patria, Shintuya and Pilcopata.

Public Health nurse Hilda Mandonado de Muniz is supervising the program, which will be expanded to various provinces of the department.

A similar campaign has been simultaneously begun in the provinces of Calca and Urubamba, relying whenever possible on the valuable aid of the future doctors who are working with the Graduation Candidate Civil Service.

She disclosed that the house-by-house campaign was decided upon by reason of the scant cooperation of the parents. In previous years, although intense informational campaigns were conducted using extensive means of communication, as well as loudspeakers in each district and province, the parents did not always cooperate. For that reason, the vaccination teams now go to the very homes, no matter how remote, to take care of the children and, in many instances, the adults.

This campaign should come to an end in the month of April, and the vaccination program against measles, another disease which in previous years has produced many victims, will be started immediately afterwards.

Course for Sanitarians

The Regional Hospital has also been planning a short refresher course for sanitarians to be conducted in the last week of the current month. The course will include lectures on tuberculosis programs, forensic medicine, administrative procedures and human relations.

MALARIA OUTBREAK IN PUERTO MALDONADO

Lima EL COMERCIO in Spanish 14 Mar 77 p 25

[Text] Cusco, 13 Mar--The occurrence of an outbreak of malaria has created alarm in Puerto Maldonado and other locations of Madre de Dios.

The Southeast Regional Health Office promptly sent out Dr Ruben Valdivieso Yabor, who has gone over the whole area as far as Iberia, which was precisely where three patients suffering from malaria were uncovered.

It has been determined that the patients came from the border zone with Brazil. Appropriate measures were adopted and are being carried out by members of the Vaccination and Disinfection Brigade assigned to the Madre de Dios Department.

The patients have been isolated and all swamps are being sprayed with DDT, and it is certain, said a spokesman of the health sector, that the outbreak has been controlled and there is no danger of it spreading.

However, Dr Valdivieso Yabar has ordered an ample investigation in case there is some other infected person who has not applied to the assistance centers.

POOR SANITARY CONDITIONS CAUSE SPREAD OF MANGE

Lima EL COMERCIO in Spanish 14 Mar 77 p 8

[Text] A problem which will surely draw the attention of the sanitary authorities has come up in the young town of El Ermitano, where hundreds of children and adults are infected with mange.

The agents of contagion are the large number of dogs existing among the population, it being asserted that there is not a single home that does not have at least one of these faithful animals.

According to the mayor of the Independencia district, Dario Luis Alvarado Diaz, the problem has not ceased to worry his Council, whose officials summoned a timely meeting of neighborhood leaders to spread the word among the inhabitants about the care and preventive measures which should be taken to keep their animals clean, or to avoid a worse situation in any case.

He said that there has been no favorable result in spite of the exhortations. "The majority does not show any interest," he observed.

He stated next that he has received requests from only a few people, and particularly from police departments, asking that antirabies vaccine be sent to some places where sources have been detected.

He made clear that the problem is being carefully studied by his municipio. And in that regard, he will summon the neighborhood coordinators for the purpose of adopting drastic measures for the benefit of the health of the inhabitants.

He said that he has also thought of "enlisting the support of the committee which is directing the Metropolitan Lima Cleanup Campaign."

This campaign, which began a month ago at the initiative of the General Office of the City Government, is intended to eliminate completely the accumulation of trash which prevails in the capital. To that effect, the cleanup brigades are going over the metropolis with the help of all the municipios for the purpose of deratting and eliminating stray dogs.

These brigades are working in Chorrillos at the present time. Mayor Alvarado Diaz said that soon it will be his district's turn, "and then we will ask for the elimination of stray dogs," he added.

TYPHOID FEVER REPORTED IN TARAPOTO JAIL

Lima LA PRENSA in Spanish 21 Mar 77 p 9

[Text] Tarapoto, 20 Mar--Outbreaks of typhoid fever and cases of bronchial and digestive ailments have shown up among the penal population of the Social

Rehabilitation Center of this city, where male and female inmates occupy small quarters under crowded conditions.

The outbreaks of typhoid fever were detected by Health Area Dr Luis Bartra Rojas. Immediate arrangements were made to confine those afflicted with that disease in the local Health Center.

REPUBLIC OF SOUTH AFRICA

SILICOSIS FOUND IN NON-MINING EMPLOYEES

Walvis Bay NAMIB TIMES in English 12 Apr 77 p 4

[Text] Cape Town--An increasing number of employees from non-mining industries are showing signs of occupational disease because, in many cases, adequate precautions are not being taken against occupational health hazards.

This is one of the findings highlighted in the latest annual report of the South African Medical Research Council (MRC) which was tabled in Parliament recently.

Prof Brink, President of the MRC, notes that during 1976, while continuing its investigation of potential and real health hazards in mining and industry, the MRC's National Research Institute for Occupational Diseases found that an increasing number of employees from non-mining industries were being referred to the Institute with signs of occupational disease.

The Institute commented that, "a disturbing number were found to be suffering from severe silicosis. Although the quartzite used in these industries is similar to that found in the gold mines, employers do not regard the dust produced as hazardous."

RHODESIA

HOLIDAYMAKERS ADVISED TO TAKE ANTI-MALARIA PRECAUTIONS

Salisbury THE RHODESIA HERALD in English 31 Mar 77 p 3

[Excerpts] Easter holidaymakers going out of Salisbury, Bulawayo, or other high altitude urban areas should not forget to take anti-malaria pills, the Ministry of Health warned yesterday.

A spokesman for the Ministry emphasized the importance of the pills being taken while in a malarial area and for four weeks afterwards.

"Due to the late onset of the rains, malaria is expected to reach its peak during this period."

The spokesman also reminded parents of children returning home for Easter from highveld schools to implement the same precautions.

SAO TOME AND PRINCIPE

NATIONWIDE VACCINATION CAMPAIGN AGAINST MEASLES

Luanda JORNAL DE ANGOLA in Portuguese 22 Apr 77 p 8

[Text] The Ministry of Public Health is going to conduct a campaign to vaccinate children from 1-1/2 to 8 years of age in the Democratic Republic of Sao Tome and Principe against measles and other infectious diseases. A vast project to educate the people is being organized to assure the success of the campaign on a national scale. The goal of the leaders of this young island state is to reduce infant mortality to the very minimum. Prior to independence, the infant mortality rate of Sao Tome and Principe was among the highest in Africa.

SUDAN

OFFICIALS EXPLAIN DRUG IMPORT DIFFICULTIES

Khartoum AL-AYYAM in Arabic 14 Feb 77 p 3

[Article by SUNA]

[Text] The director of the Atlas Company says, "If the prices of imported drugs which are distributed to drugstores were reduced by 5, 10 or even 20 percent, this reduction would not be a solution [to the problem of imported drugs]. He who does not have a pound does not have 80 piasters [either]. If there is a problem, it is that of a limited income person who does not receive adequate care in government hospitals which have created some lack of confidence in the government's medicine, or as it is said, "the medicine one has to buy may be a bug poison."

The director of the Atlas Company went on to say that most of those who are employed in selling drugs are professionals and educated people. He said that any attempt to reduce their profits which cover their expenses will have the result of alienating them from this field or reducing their number. This would hurt the country, or this commodity would find its way to the black market.

The director of the Atlas Company cites drug profit margins and says that they are higher in neighboring countries than they are in Sudan. He substantiates this with [examples from] several countries, as follows:

In Kenya the importer makes a 35 percent profit.

In Nigeria an importer makes 30 percent profit.

In Kuwait it is 35 percent.

In Tanzania the importer is a government organization; it makes a 25 percent profit.

Furthermore, all the neighboring African countries do not have laws [such as the ones] Sudan has that control the importation of drugs. An importer in these countries can sell a drug directly to the public even if the drug were not registered.

The process of registering a drug requires a long period of time. The last point which the director of the Atlas Company explained was that the importer took 15 percent [of the cost of the drug], the drugstore took 20 percent, and the government took 21.5 percent. The [latter's share] is as follows:

5 percent additional fees

15 percent currency conversion fees

1.5 percent dock fees

21.5 Total

Profit margins in 1971 were 20 percent for the importer and 25 percent for the drugstore, but they were reduced in the same year to 15 and 20 percent, respectively. It was then said that this reduction was temporary even though the bank's interest [rates] at the time were 8 percent; now they are 14 percent. The rates for rent, electricity, mail, telegraph, telex and all other expenditures have increased just as the price of gas used in the distribution vehicles has increased.

An important fact is that medicine is the only commodity whose price was reduced in 1971. Reducing its price [again] will not be considered. No other commodity has been treated the way medicine has been treated.

SUNA asked if there were any transportation problems facing drug importers.

Dr Runi Jabrah replied, "Port Sudan has no previous experience in customs clearing or shipping drugs, and Khartoum Airport has only one refrigerator that has recently been designated for the [use of the] refreshment stand. We know that some medical serums must be kept in refrigerators and that their presence outside a refrigerating unit even for a [few] hours neutralizes their effectiveness. Also, drugs are transported from Port Sudan to Khartoum in hot

iron vehicles, and sometimes one finds quantities of wood and children's toys [in the same vehicle]. These vehicles become mobile stoves.

"Air-conditioned vehicles must be made available, and the shipping and customs clearing of drugs must be given certain priorities."

At the end of the meeting with Director of the Atlas Trade Company Dr Runi Jabrah, SUNA asked, "Since the Ministry of Health Service Law requires the general practitioner to work 2 years in the government after which he is granted a license to practice in a private office, why don't pharmacists receive the same treatment? All pharmacists who graduate go directly into the job market or work with private sector companies that import drugs. We have a College of Pharmacy which graduates between 30 and 40 pharmacists annually, and this is in addition to the other pharmacists who graduate from other universities.

"Why doesn't the Ministry of Health treat pharmacists the same way it treats general practitioners so that we can overcome the fearful shortage which different hospitals in Sudan suffer from?

"Pharmacists can be assigned for a period of 2 years to the different hospitals in Sudan in order to improve performance and efficiency standards and [to ensure] the presence of qualified people responsible for dispensing and delivering drugs, instead of the negligence cases that hospitals are suffering from."

The range of the questions expanded. SUNA took its questions to private sector officials in an area that is not less vital than that of medical supplies and equipment. We met with Dr Nicola 'Abd-al-Sayyid Ibrahim, deputy director of al-Duktur Warehouses. This is one of the private sector warehouses that imports medical equipment. There are three other companies [in the same business].

SUNA asked how medical equipment was imported. Dr Nicola 'Abd-al-Sayyid explained that they imported medical equipment from a number of international companies and that they were dealing with India. Recently, however, importing from India was stopped. "We were importing most of the equipment from India because Indian prices were reasonable. However, we now have permits to import medical equipment from India, but we do not know whether or not we will be permitted to use them. We thought of importing from China and Japan, but these countries conduct business by means of letters of credit which the Bank of Sudan does not permit for the local market. We had submitted [credit] applications, but they were turned down. As a result of all of this we were compelled to import from some British and German companies whose prices are high. But these companies give us the opportunity to pay after we receive the merchandise. There are also other companies that give one a 90-day period after receiving the merchandise; but these are few."

Regarding the method of determining the prices of medical equipment the deputy director of al-Duktur Warehouses explained, "After deducting actual cost, payment is made to the bank in pounds sterling, for example. The bank collects 15 percent of the sum as conversion tax.

"Customs fees for medical equipment of 40 percent [of their cost] are also collected. This is in addition to the 5 percent development tax that is collected; it used to be 3 percent. Then there are the customs clearance expenses and transportation expenses from Port Sudan to Khartoum. The legal profit margin of 15 percent is [of course] added to this.

"I would like to point out that customs fees collected on laboratory glass equipment amount to 70 percent [of cost]."

About the relationships between companies that import medical equipment and pharmacies and the Medical Supplies Administration, Mr Nicola explained that pharmacies do not often enter into the field of medical equipment. [He said,] "Some pharmacies in the regions and some pharmacies in the capital have orders for medical equipment from some physicians, and they try to purchase them from us. But our relationship rests mainly on [selling them] medical supplies. This relationship begins when there is a shortage in what they need; and they find that what they lack is available with us."

Regarding the problems that the private sector is facing in importing medical supplies and equipment, the deputy director of al-Duktur Warehouses explained, "Stopping the importation of inexpensive medical equipment, like the surgical equipment that we used to import from India, for example, is one of the basic problems."

That was one side [of the story]. The other side is the difficulty of obtaining credit from banks. This results in delaying numerous import operations that could have been completed.

There is also the fact that obtaining terms from foreign companies is not easy because of inflation that is spreading throughout the world. Foreign companies are always asking for immediate payment. Besides, banks do not extend the terms that are necessary. These banks, for example, used to extend banking terms in this regard.

[The deputy director of al-Duktur Warehouses] went on to say, "We are making an effort to provide the equipment that is necessary which we do not have. This requires a large capital, and local banks or international companies do not offer any terms. In most cases, therefore, we are compelled to specify the kind and quantity [of equipment] according to actual need.

"Finally, I would like to make it clear that there are no problems in import permits of medical equipment. But we sometimes face some problems when there are inquiries about whether what is requested is actually medical equipment or something else. These inquiries usually take a long time. Recently, for

your information, industrial protection equipment was registered under Item 24 earmarked for medical tools."

SUNA's last meeting was with Dr Kamal Muhammad Madani, director of medical supplies. We presented everything that we had heard to him, and we asked him to give us a true picture as to what is actually taking place in medical supplies. [We asked him to tell us] how drugs are imported and distributed and what the bases and controls that accompany importation and distribution are.

His excellency said, "First, I would like to point out that the budget allocated for drugs is usually a 2-year budget, and that the budget is 12 million pounds, to the amount of 1 pound a year [sic].

"That was for fiscal years 1976-77 and 1977-78. But if we were to compare the current budget with those of previous years, these would be as follows: the budget for 1974-75 and 1975-76 was 8.6 million pounds; and the budget for 1972-73 and 1973-74 amounted to 5 million pounds.

"Let it be known that we had hoped for a bigger budget because of the large expansion that has taken place in therapeutic institutions and because citizens are turning towards therapy. Besides, drug prices have increased throughout the world."

Regarding the manner in which bids are submitted, the director of medical supplies pointed out that they present their needs in an international bid every 2 years by means of advertising in the local and international press and through our embassies abroad. We receive proposals from all the international pharmaceutical companies via their local agents. Then a bids committee is formed at a certain time to select a proposal suitable in so far as quality and price is concerned. The committee's recommendations are submitted to the Ministry of Finance and Planning and the Ministry of National Economy for final approval. Afterwards, the authors of the winning proposals are notified. We are now in the final phase."

Is the responsibility of medical supplies confined to distributing drugs to hospitals?

Dr Kamal Madani replied: "People's notion of medical supplies is restricted to drugs only. I would like to emphasize that there are other activities in [the field of] medical supplies. Among them is providing all the drugs, surgical equipment and tools, beds and other requirements that are needed by the Ministry of Health's therapeutic and preventive institutions. [There is also the activity of providing] laboratory and X-ray materials, publications, examination and diagnostic equipment, food, etc.

"In addition, those supplies are to be made available to the medical corps and to the units of local popular government (the hospitals and first aid stations). And this includes the southern region also.

"One can imagine the magnitude of the burden and the responsibility. The steps that are being taken to execute this duty may be summarized as follows:

"First, these requirements are to be made available at the warehouses of the Ministry of Health by purchasing them from the world market or the local market, by acquiring them from the state's other warehouses or by manufacturing them in the medical supplies workshop.

"Second, for the stage of storing these drugs after making them available, a suitable place must be prepared for storing them at the suitable temperature and [in accordance with] accepted scientific storage methods.

"Third, we come to the stage of distribution which is carried out according to the needs that are reflected in the requests of the different units. We take into consideration the approved budgets of these units."

Dr Kamal Madani spoke about how drug prices are determined. "The processes of preparing the bids are preceded by a study of the ministry's needs for drugs quantitatively and qualitatively. The method [of determining prices] is patterned after what was dispensed during the preceding 2 years; a percentage is added to cover unexpected increases.

"Regarding the determination of the kind of drug, this is done in meetings with specialists in the different fields of medicine. They review drug lists for the purpose of adding modern drugs or cancelling drugs that they think are not useful and not consistent with the medical developments that are taking place."

TANZANIA

EXPANSION OF RABIES

Paris LE FIGARO in French 8 Mar 77 p 10

[Text] The rabies epidemic which has raged in some sectors of Tanzania for several months is now threatening a large part of the territory. In the Dar es Salaam region, more than 300 stray dogs have been killed, and pamphlets have been handed out to inform the populace of the dangers of the disease. Stocks of antirabies vaccine have been distributed throughout the country, where already more than 50 deaths are being lamented.

ZAIRE

VACCINATION AND INSECT-CONTROL CAMPAIGN

Kinshasa ELIMA in French 9 Mar 77 pp 1, 7

[Text] The Mobutist revolution puts man at the center of its action. In this perspective, everything relating to the people's way of life must be the object of individual solicitude by all political officials in all the sectors of national life.

The health-improvement problems of the city of Kinshasa are recently known to have become so acute that they had captured the complete attention of city hall officials who had begun to search for adequate solutions to them.

Thus, this Monday, an important work session brought the State Health Commissioner together with the City Commissioner, citizen Sakombi Inongo, accompanied by his two assistants, citizens Ilunga and Momene. The meeting dealt mainly with the health problems in the capital. Three basic points were very carefully examined. These were: 1) The human infrastructure in the field of health; 2) The general equipment of health establishments; and 3) Pharmaceutical products.

With respect to the human infrastructure, disharmony was noted in the assignment of physicians and medical personnel in the health-care establishments as well as in their utilization. Because of these deficiencies the Kinshasa Medical Teaching Institute lacks a precise status. This is at the bottom of the difficulties that this school is currently experiencing in the nonsettlement of study grants. An in-depth study is [being] undertaken so that the National Education Department can define individual responsibilities for this institute's proper function.

Special emphasis was placed on the human relationships which absolutely must exist between the physicians and their coworkers and between the medical personnel and the patients, as the executive council heartily recommended in its last meeting.

Touching on the problem of the general equipment of health-care establishments, the deplorable state in which many of the capital's medical groups find themselves was noted first of all. The city commissioner requested that this situation be improved. He also turned his attention to the case of the Kinkole patients who flee their surroundings to wander about in town. The problem of feeding the patients was likewise broached. In this regard it was noted that a supplement of 30,000 zaires is necessary to balance the budget and permit the purchase of food in sufficient quantity to feed the patients.

Further, the city commissioner requested that city hall be associated with the management of Kinshasa hospitals in order to follow their functioning and their development.

For the health department, the noncooperation between the central authorities and those of the city with respect to public sanitation was also noted. The small amount of money available for the functioning of these departments constitutes a serious handicap that must be overcome. It was decided that there will be cooperation and steps will be taken to obtain an increase in the budget of these departments.

As to the question relating to the lack of pharmaceutical products in the hospitals and dispensaries, the state commissioner is preparing data to normalize purchases and the distribution of drugs and equipment.

For improving the capital's health, the City Commissioner is pleased to begin a large campaign of vaccination against measles, diphtheria, tetanus, whooping cough and poliomyelitis as soon as next week. As for disinfecting the city, efforts between the health department and the city must be coordinated so that the program for ridding Kinshasa of insects can get started as soon as possible.

In this respect the city will need to hire several supplementary units to flesh out the insect-control department. In addition, the new personnel will need to receive sufficient instruction before taking up their duties. Further contacts will need to be made later to firm up the cooperation in carrying out the entire sanitation plan.

MOBUTU PROVIDES FOR ORPHANS OF EPIDEMIC

Kinshasa ELIMA in French 15 Mar 77 pp 1, 7

[Text] Four hundred and seventy-two orphans were counted in the districts of Yambuku where a deadly epidemic caused by the Ebola virus broke out last year.

This census enabled the members of the committee administering the fund to help the victims of Yambuku which Guide Mobutu Sese Seko put at the disposal of the national committee that met recently in Bumba under the chairmanship of the commissioner for the Equateur region, Citizen Loposso Nzela Balomba, to decide on the utilization of the presidential donation.

In fact, during that meeting this fund amounting to about 50,000 zaires was allocated as follows:

30,650 zaires for medico-health action

19,350 zaires for assistance to the orphans.

The medico-health action involves the purchase of pharmaceutical products, restoration of the hospital buildings and their equipment and the establishment of the doctors assigned to Yambuku.

The aid to the orphans consists in opening accounts in their names at the CADEZA [Zaire Sinking Fund] in Bumba, the sum of 70 zaires being deposited to the account of each orphan who lost both parents and 15 zaires to each semi-orphan. The total amount deposited in the CADEZA at Bumba comes to 10,985 zaires.

The balance of the amount of aid for the orphans has been deposited in a bank account with the BCZ [Central Bank of Zaire] at Bumba. Next year it will be used to pay for the tickets of the orphans who will have to go to the national orphanage in Kisangani, as well as for the costs of shipping the equipment material for the hospital ordered from Mbandaka and Kinshasa.

VACCINATION OF CHILDREN AGAINST MEASLES

Kinshasa ELIMA in French 18 Mar 77 p 8

[Text] The campaign for vaccinating children from 9 to 36 months old against measles starts in the capital next Monday, 21 March, in conformity with a decision made public recently by the Public Health Department and city authorities.

The City Medical Division specifies in this respect that four vaccination teams have been set up for the city of Kinshasa, divided according to one team per subregion.

The team will stay two weeks in each zone.

Members of the men's and women's militant groups will have their children vaccinated in their respective collectivities, and personnel of the JMPR [Youth of the Popular Movement of the Revolution] will see to discipline during the procedures. The subregional physicians are in charge of supervising the teams and evaluating the difficulties of the operation.

Further, in preparation for this operation, the interim subregional commissioner for Lukunga, Citizen Adjidjimo Momene wa Bonguma, had a meeting in his office yesterday morning with the subregional physician of his jurisdictional area and the Kinshasa zone commissioner, with whom he drew up means for carrying out this campaign, which is planned for 21 March to 3 April.

A mobile team, which will be made available to this zone for this purpose, will go from one collectivity to the other at a rate of two days per collectivity.

The subregional commissioner made the Kinshasa zone commissioner responsible for determining the sites where the operation will be carried out and for making his constituents aware of the plans so that they will turn out in large numbers for the vaccination.

Kinshasa ELIMA in French 23 Mar 77 p 3

[Text] A lot of 48,000 doses of antimeasles vaccines has been made available to the regional health department in Shaba by the Executive Council, Dr Bwazani Mata Baembeya, regional physician-inspector, announced Friday to the AZaP [Zairian Press Agency].

With regard to this matter, he stated that the vaccination campaign will not be launched until the start of the dry season.

Dr Bwazani remarked that several cases of measles have been reported in Shaba during 1975 and 1976 and that this disease alone has caused 1,337 declared deaths during the 1975-1976 period, while epidemic diseases have been responsible for a total of 1,509 deaths.

The Regional Physician-Inspector cited vaccination and education, with respect to both sanitation and nutrition, as effective ways to combat measles. These same means are equally advised in case of epidemics or endemic diseases caused by bad sanitation conditions both at the individual and at the community level.

Dr Bwazani laid considerable stress on the reorganization and the utilization of these methods on a large scale.

WHY DO MEASLES KILL IN ZAIRE?

Kinshasa ELIMA in French 2 Apr 77 p 4

[Text] Because of gamma globulin prophylaxis and the use of antibiotics, measles have become infinitely less deadly in infants, and its complications less frequent and less serious in children of all ages in the European countries.

But here in Zaire it is found that measles, a benign disease in other lands, results very often in death. Briefly, three types of measles may be distinguished:

--Common measles;

--serious measles;

--malignant measles.

If we consider common measles, the diagnosis may be obtained quickly, either by family or social amamnesis, or by Koplik spots on the inside of the cheek. During this invasion phase, treatment consists in a diet suited to the temperature, nasal disinfection, soothing draughts. In case the diagnosis is not possible, one thinks of influenza, and an expectant line of treatment.

In the eruption period, begin with discreet nasal disinfection, mouth care, and if required, very warm steam compresses or repeated larynx compresses.

Skin care should also be given, and this is very important; a quick wash in the mornings with lime-blossom or camomille water, then apply talcum powder after allowing the skin to dry. Vulva care should not be forgotten for the girls: a simple wash, or use 1/20% argyrol to paint the labia majora. An anticitarrhal draught should also be administered--eucalyptus suppositories for infants or children would be good.

At the time of defervescence as soon as the temperature drops and the eruption disappears, the above described measures should be progressively reduced, as well as the antibiotics, if the latter had been administered. Examination of the urines should not be omitted either, and the patient may be allowed to get up after three fever-free days, and the first outing 6 to 12 days after defervescence if auscultation shows a normal condition. The child must also be examined 3 to 4 weeks after the first outing.

In serious cases of measles, occurring either because of mild or abnormal complications especially in the case of infants or associated with whooping-cough and diphtheria.

It is usually observed that after 24 to 48 hours, the temperature remains at a plateau at 40°C, with a fast and thready pulse. The eruption is then violent and confluent. The child then finds it hard to take nourishment, is restless, and does not sleep, disturbed by pruritis and cough, sometimes diarrhea. He then starts complaining of ear-ache, and the pulmonary symptoms become rapidly more marked. If the child appears dehydrated at this point, the liquid ration must be supplemented orally if possible, or intravenously.

The eyes must then be treated: with light tea, drop between the eyelids a 1/20% Barnes argyrol solution, or a solution with colloidal silver base, and more often nowadays, collyl with typhomycin, which is very commonly found on the market. The first line of treatment would consist in frequent nasal instillations every 2 to 4 hours with a lukewarm physiological solution followed in one case out of two or purulent rhinitis by the use of a specialized sulfamide solution, or better still, use the penicillin-streptomycin solution, touch the labial fissures with a methylene blue solution, or paint the lips, the gums, and the tongue with collubaziol. In case of angina in bigger children, use slightly analgesic tablets.

As regards skin care, touch the scratches, the pyodermatis first with a gentian violet solution, or if there is intense itching, apply powder abundantly.

To treat the hyperthermia, the child may get relief from lukewarm packs, which, renewed exactly every 4, 5 or 6 hours have an antithermal and anti-pruritic effect, tending to prevent pulmonary complications. In certain hyperthermic conditions, one should resort to warm and cold baths.

Furthermore aspirin and pyramidon have been recommended to reduce fever during the measles infection. It appears however uncertain that there is no danger in their use, since the drop in temperature may cause a very serious collapse, and in any case it is surely disadvantageous to block the phylactic role of the teguments against the measles virus through the brutal effect of the treatment on the organism's defense reactions.

The administration of antibiotics should also be continued or begun first orally, alone or with diazines. In case of digestive intolerance, one must have recourse to intramuscular administration of penicillin, streptomycin, or tetracyclin. Lacking immunoserum, of which 10 to 20 cc should be injected daily, use for boys only the blood of relatives who have had the measles, 10 to 40 cc according to the age daily or every other day.

As regards the use of gamma globulins, it would require a very high posology distributed over several injections per 24 hours, which is only applicable for cases of encephalitis or encephalomyelitis.

As soon as dyspnea begins, oxygen must be given, and nothing is as practical as a tent if it can be procured.

Malignant Measles

After an ordinary invasion or already serious symptoms within a few hours the appearance is observed of an erythema remarkable by its tendency to confluence and the petechial aspect of the elements, all this being accompanied by a very high temperature with a pulse difficult to count, and an oedematous type of bronchitis. We would have to apply all the therapy discussed in the last issue, consisting in hot and mustard baths, lukewarm packs, the use of antibiotics, of gamma globulin of the cardiac toni...the child is most often placed under oxygen therapy if the evolution appears dangerous, action must be taken quickly not to allow oneself to be beaten by time.

Sometimes after the fourth day of a characteristic invasion, the temperature rises above 40°C, and the general condition seems to change while the first symptoms of measles appear, but contrary to expectation, exanthema will be discreet, it may disappear and the teguments show a rather livid aspect, bronchitis or bronchiolitis occur aggravating the condition; according to the accepted expression, this is a case of internal measles, which it would be wrong to confuse with benign measles, in which the symptoms and exanthemous flush simply remain 'morbilli sine morbillis'. In this case antishock treatment, and recourse to hormone therapy must be started immediately.

In very young children, measles are often accompanied by blepharo-conjunctivitis, multiple subcutaneous abscesses, impetigo, and digestive disturbances which may result in sometimes severe diarrhea.

At this age, pulmonary complications, destructive and toxic oto-mastoiditis increase considerably the mortality rate. The immunoserum injections from

persons who had had measles, and particularly gamma globulin, even if given late, have a favorable effect on the course of the disease and afford a little protection against bronchopneumonia.

In case of measles in an infant, if there is no gamma globulin, the injection of 5 cc of the parent's blood, oxygen inhalation at the slightest sign of preventive bronchial congestion, and especially injection of antibiotics is recommended to prevent complications without waiting for the eruptive phase.

Measles preceding either whooping-cough, or diphtheria, or contracted consecutively aggravates considerably the prognosis because of complications, among which we may mention diarrhea, including colitis sometimes in the form of real dysentery, pulmonary complications such as bronchio-alveolitis determining the phenomena, or massive bronchopneumonia. A serious case of measles often causes in children asthenia, anorexia, and it is of this that I wish to speak to the Zairian mothers.

It seems that in Zaire as soon as a child contracts measles, it must not be washed, which is contrary to what I indicated earlier; it must not be injected, how then will we administer antibiotics anticipating broncho-alveolar infection, moreover, the child does not eat; in case of diarrhea, do they know that they must be rehydrated and made to eat even semi-liquid foods.

Furthermore the most serious problem is that the parents come to the hospital, then run away from the same hospital to go to the fetishist, to return to the hospital with a child in agonizing condition to increase the death statistics and particularly at this time when the measles mortality rate may be estimated at 50 percent, the parents may be requested to come to the hospital as soon as possible, remain there following the advice given, and especially take great interest in the vaccination campaign soon to be launched, for in that case instead of having a very serious case of measles, he will suffer from an abortive or less serious form of measles, making both parents and doctors happy.

ZAMBIA

PROGRAM TO ERADICATE TSETSE FLY AND TRYpanosomiasis

Lusaka TIMES OF ZAMBIA in English 6 Apr 77 p 6

[Excerpt] The Government is to embark on a vigorous program to eradicate tsetse fly and trypanosomiasis (the disease it carries) in cattle rearing areas of Chief Moono in Mumbwa district, a spokesman for the Ministry of Rural Development said yesterday.

The action follows a TIMES OF ZAMBIA report on the presence of the flies in the area, published on March 28.

Confirming the report, the spokesman said that the department of veterinary and tsetse control services, did not at present know exactly how the situation was.

He said that cases of trypanosomiasis in cattle had been reported in other parts of Myooye and Nangoma areas as well.

"In order to improve the situation, the Government is to embark on a tsetse and trypanosomiasis eradication program in the areas concerned," he said.

The spokesman also said that plans had already been drawn up to conduct a major survey in the areas to define the extent of the fly-infested boundaries.

Operation

The program would be followed by a ground operation covering about 1,000 square kilometers.

The area to be sprayed would be based on the result of the survey which would proceed it.

He said that spraying would start in July this year, when it was hoped that the survey program would be completed.

Lusaka TIMES OF ZAMBIA in English 8 Apr 77 p 5

[Text] The Government has decided to reopen a tsetse control picket ten km west of the Kariba turn-off on the main Lusaka-Chirundu road due to the spread of tsetse flies, a spokesman for the Ministry of Rural Development announced.

MASS IMMUNIZATION AGAINST COMMUNICABLE DISEASES

Lusaka TIMES OF ZAMBIA in English 8 Apr 77 p 1

[Text] Zambia yesterday observed World Health Day with mass immunization of children against communicable diseases such as measles, polio, whooping cough, tuberculosis and smallpox throughout the country.

In Lusaka, ward councillors and Party officials addressed residents at various health centers on the importance of immunizing their children against killer diseases.

At Chilenje, Lusaka deputy mayor Mr Maxwell Sibongo said it was important for parents to ensure that their children were vaccinated regularly if they were to grow up strong and healthy.

Other health centers at Mutendere, Chawama, Kanyama, Marrapodi, George and Matero townships reported a good turn-out of residents for the immunization campaign.

Lusaka council health officials and those from University Teaching Hospital conducted the immunization in various clinics.

Copperbelt Minister Mr Joseph Mutale said 374 children died from measles last year in Ndola and Kitwe.

He said 123 died at Ndola's Arthur Davison Hospital where 1,234 children were admitted for measles and 251 died at Kitwe Central Hospital where 1,188 were admitted.

Increasing

Mr Mutale disclosed these figures when he addressed school children and medical personnel at Ndola's Village Green to mark the day.

Cases of measles were increasing every year and records in Ndola showed that the outbreak of the disease occurred from December to May or June.

"Measles is a killer disease in Africa, especially when it is associated with malnutrition and yet one injection of the live vaccine gives protection from the killer virus," he said.

Mr Mutale said vaccinations must be given to babies over seven months old in July, August, September, October and November so that deaths and suffering from measles were prevented.

"Children must be taken to under-five clinics for vaccination and check-up," he added.

The minister said, however, that the best way to prevent deaths from diseases was to launch health education among mothers.

II. ANIMAL DISEASES

ALGERIA

NATIONAL LIVESTOCK VACCINATION CAMPAIGN

Algiers EL MOUDJAHID in French 27 Mar 77 p 4

[Text] Oran--The national campaign for vaccinating sheep and cattle, initially set for 15 March, was finally launched on 20 March in the Bel Abbes wilaya, more specifically in the Tellagh daira, which are desirous of preserving the national livestock against any disease (foot-and-mouth diseases, scabies, etc.).

This prophylactic health campaign, undertaken by the Ministry of Agriculture and Agrarian Reform, includes the sectors of the self-managed agrarian revolution as well as the traditional sector.

It is worthy of note in this respect that 200,000 head of sheep, spread throughout the Steppe, will be vaccinated.

In fact these are only predictions by the wilaya agriculture management, because the statements put out by the private stock raisers of the Tellagh in no way reflect reality, to say the least. And yet this vaccination is free, so why this reluctance? Just think that a nondeclared flock is not only exposed to all kinds of diseases but it can even trigger epidemics. In this context the Communal Farmers' Unions may play an effective educational role. Whatever the situation at the regional level, a team of 12 technicians backed up by veterinarians has been going through the rural communes since Sunday.

The kick-off was given at Marhoum. On the following day the operation will be broadened to the communes of Ras El Ma, Dhaya, Oued-Taourira, Moulay-Flissel, Teghalimet and Tellagh.

The DWA [expansion unknown] official in charge of animal health estimates, for his part, that the vaccination material required for the operation will be insufficient. A stock sufficient for 300,000 head of sheep is already available. Further, a similar health campaign has been under way since 1 March in the six dairate of the wilaya. This time this large-scale action consists of vaccinating cattle estimated at 40,000 head.

FOOT-AND-MOUTH DISEASE

Algiers EL MOUDJAHID in French 27 Mar 77 p 4

[Text] A communique from the Ministry of Agriculture and Agrarian Reform announces:

"Because of the appearance of an epidemic of foot-and-mouth disease in cattle in Morocco and in face of the threat that this causes to hang over our own livestock, the Ministry of Agriculture and Agrarian Reform (animal production management) has launched the first national prevention campaign against foot-and-mouth disease.

"The Ministry of Agriculture and Agrarian Reform (animal production management) reminds stock raisers of the dangerous nature of this disease, particularly for cattle of selected breeds, as well as its highly contagious character; contagion can occur either by direct contact or by contact with objects, buildings, vehicles, or substances (water, feed, manure, milk, etc.) which have been in contact with one or several sick or contaminated animals; animals of the sheep, goat and camel species as well as some wild animals (wild boars) are likewise sensitive to this disease, for which they may serve as germ carriers.

"In the interest of the country as well as in the interest of the stock raisers, the latter are requested to cooperate voluntarily and rapidly with the vaccination campaign currently in progress, which involves all cattle more than 6 months of age and, in the communes bordering Morocco, likewise animals of the sheep, goat and camel species.

"The vaccination is currently in full swing in all wilayate of the nation; it is being carried out on the site by the technical divisions of the wilayate Managements of Agriculture and Agrarian Reform.

"Under the direction of the walis, and in close liaison with the National Union of Algerian Farmers, the Communal Peoples' Assemblies are organizing the task of herding the animals together for vaccination purposes. Stock raisers are obliged to bring their cattle to these assembly points.

"Stock raisers are notified that this vaccination is obligatory and is completely free.

"The Ministry of Agriculture and Agrarian Reform (animal production management) reminds all stock raisers that they are obliged to proceed with the immediate isolation of any animal in their herd which may show signs of this or a related disease, and that they are further required to declare same to the technical divisions of the management of agriculture and agrarian reform, as well as to their Communal Peoples' Assembly.

"The Ministry of Agriculture and Agrarian Reform (animal production management) is counting on the cooperation of stock raisers, and calls upon them to mobilize for the complete success of this preventive campaign against foot-and-mouth disease."

Algiers EL MOUDJAHID in French 28 Mar 77 p 3

[Text] The campaign for vaccination against foot-and-mouth disease is being actively continued throughout all the Tlemcen wilaya, where provisions have been taken to ensure it the best conditions for success, especially in the rural areas.

Some ten health teams, supported by resident veterinarians from the Animal Health Institute in Oran, are carrying out this operation for the purpose of wiping out all risk of contamination of livestock by foot-and-mouth disease, the appearance of which has been recorded in Morocco.

Initial figures have estimated at 18,000 cattle and 70,000 the number of head immunized against this contagious disease in the Tlemcen wilaya.

BRAZIL

FOOT-AND-MOUTH DISEASE SPREADS

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 19 Mar 77 p 27

[Text] Porto Alegre--Foot-and-mouth disease has already been registered in 40 municipios of Rio Grande do Sul, and according to Claudio Figueiro, director of animal husbandry of the state Agriculture Secretariat, there is not enough vaccine available in the state to combat the A-Bage virus, identified by technicians as responsible for the outbreak of the disease.

Figueiro, who has already reported the fact to the National Coordinating Office to Combat Foot-and-Mouth Disease, believes however that there are other factors contributing to the greater spread of the disease in Rio Grande do Sul, as, for instance, the intense movement of animals in the current harvest. "But," he said, "the action of the vaccine is fundamental in connection with the fight against the disease. At present, the administration of the specific vaccine to fight that strain of the A virus is indispensable."

The Agriculture Secretariat is merely the executor of the campaign to combat foot-and-mouth disease. The control of the quality of vaccines is the exclusive responsibility of the Ministry of Agriculture. According to Figueiro, delays occur with precautions that need to be adopted with a certain degree of urgency, despite the close cooperation between the state and federal offices.

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 24 Mar 77 p 43

[Text] The A-Bage virus--the strain which is causing foot-and-mouth disease in the cattle herds of Rio Grande do Sul--is spreading widely and has already been detected in Santa Catarina, Parana and even Sao Paulo. The statement was made yesterday in Porto Alegre by Carlos Rafael Sfogia, former coordinator of the Executive Group to Combat Foot-and-Mouth Disease in Rio Grande do Sul. And a high official of the Noly Laboratories, with its main office in Porto Alegre, reported that the enterprise is not producing the vaccine against A-Bage virus because it received orders to that effect from the Ministry of Agriculture. He also said that if 4 million doses were rejected--as the Rio Grande do Sul secretary of agriculture complained the day before yesterday--the losses would total 5,640,000 cruzeiros, because the price per unit of the vaccine against foot-and-mouth disease is 1.41 cruzeiros.

Agriculture Minister Alysson Paulinelli said in Brasilia: "I do not wish a dispute between specialists to spread to the cattleman." The statement of the minister was the result of the announcement of the secretary of agriculture of Rio Grande do Sul, Getulio Marcantonio, who claimed that the vaccine against foot-and-mouth disease being administered in his state is ineffective and criticized the actions of the National Coordinating Office to Combat Foot-and-Mouth Disease.

Sffogia denied the rumors that he resigned from the Executive Group to Combat Foot-and-Mouth Disease on account of the problems with the vaccination: "I left because I was tired. I had been in office since 1969, and that problem of the foot-and-mouth disease is very exhausting." He disclosed that there were 546 new sources of the disease in the state in the first two months of this year, and that the current rate of growth is 70 new sources a week.

As to the problem which ensued with the vaccine and which was denounced by the secretary of agriculture, he explained that there was an error in calculation: "We thought that the 12 million doses of vaccine which the laboratories could produce would be sufficient. But 4 million were rejected during the testing and could not be used."

By the end of February, according to Sffogia, the foot-and-mouth disease situation in Rio Grande do Sul was the same as in October 1976, when the sources started to increase with a surge of 70 a week on the average. He asserts that the situation "is not desperate," but "it constitutes a serious and ominous worry when one considers that that increase in the number of

cases came up during an important season for the economy of Rio Grande do Sul--meat production time--and started hitting the areas with the largest number of cattle, such as Alegrete, Uruguaiana, Sao Borja, Bage, Dom Pedrito, the whole border zone which practically depends on livestock raising for a living."

The 546 new sources registered in the first 2 months of the year represent, according to Sffogia, "an insignificant figure in statistical terms. However, that figure assumes importance precisely because of the areas affected." He also said that the National Coordinating Office to Combat Foot-and-Mouth Disease intends to have a decision on whether to change the virus for the production of the vaccine by the next vaccination in June.

Minister Paulinelli said that he is in favor of conducting the tests with the two vaccines--one with the A virus, and the other with the A-Bage virus plus the C and O viruses--to definitely establish which is the best. Secretary Marcantonio asserted day before yesterday that without the A-Bage virus, the cattle herds of his state remain without protection against the disease.

The chairman of the Agriculture Committee of the Rio Grande do Sul Assembly, Deputy Rospide Neto, averred that the problem of the lack of adequate vaccine against the A-Bage virus "is not new," adding that "it is rumored that certain sectors interested in favoring foreign laboratories which produce this vaccine are acting on the sly, and in this manner they harm not only the producers, but mostly the economy of the state."

ITALY

RABID FOX CAPTURED IN THE AURINA VALLEY

Rome L'UNITA in Italian 15 Mar 77 p 10

[Article by Adriano Mantovani]

[Text] During the past few days a case of sylvatic rabies was discovered in a fox in the Aurina Valley at the Austrian border. It involves a phenomenon which had disappeared from Italy many years ago. We print an article by Professor Adriano Mantovani, Director of the Institute of Infectious Diseases of the University of Bologna, on the causes, dangers and measures to be taken.

Those who followed Swiss television most recently were strongly impressed by the fact that a person bitten by a cat in that country had died from rabies. Less noted is the fact that Italy, free of rabies for a number of years, is no longer, because last week the disease was found in a fox in the Aurina Valley at the Austrian border.

It was to be expected that sooner or later sylvatic rabies, transmitted by foxes or other wild animals, would also reach Italy. As a matter of fact, measures adopted in various countries where sylvatic rabies exists (practically all countries of Europe and North America) have been able until now to slow down but not stop the advancement of the disease in those places where a sufficient number of foxes are present. The vaccination of dogs in the border zone has been going on for some time, and active measures toward thinning out the foxes were recommended in expectation of rabies appearing in Italy.

A population of at least one fox per square kilometer is required for rabies to establish itself and to progress. In such cases rabies spreads at a rate not greater than 50 kilometers per year.

For the purpose of obtaining data about the spreading of foxes and other wild carnivores in Italy, the Zoological Laboratory for Hunting and the Institute of Infectious Diseases of the faculty of veterinary medicine of Bologna recently sent questionnaires to the various regional councilors who deal with hunting, in order to obtain the most precise information possible on this question. Nevertheless, we know that foxes are present in sufficient numbers to permit the spreading of rabies along the entire Alps, its foothills, and the Apennines, but there should be very few or none in the Po Valley. Consequently, slow spreading from the entrance zone along the Alps, its foothills, and the Apennines at a rate of 30-50 kilometers per year is expected. The disease also could come from Switzerland.

Above all, the measures to be taken should identify the disease wherever it spreads, limit its advancement among wild and domestic animals, and prevent infection of humans.

The Zooprophylactic Institutes of Brescia and Padova, upon whom the border zones depend, are equipped to make a diagnosis as well as are some university institutes. It would be necessary to bring the suspected animals to these institutes quickly. It must be noted that one of the symptoms of rabies is a change in behavior; thus, the fox may become strangely domesticated as happened by the infected one in the Aurina Valley.

In addition, it will be necessary to reduce the number of foxes and other wild carnivores because, as has been stated, spreading of the disease depends upon the density of these animals. A necessary but painful measure is involved; but on the other hand, if rabies should appear it would likely provoke a heavy mortality of wild animals. Also included are stray dogs and cats which constitute a serious problem with regard to breeding and public safety in various zones.

It will be necessary to step up dog-catching in order to eliminate those strays which are potential spreaders of the disease and may act as transmitters between the sylvatic and urban environments.

Provisions also should be made for the vaccination of dogs and, eventually, other animals in regions exposed to the contagious disease.

Among animals which are particularly exposed are cattle and cats which can easily encounter infected foxes in pasturelands and forests where cats go hunting. The person who died from rabies in Switzerland was infected by such a cat.

Special treatment exist for persons who have been bitten by infected or suspected animals, and in Italy it would be worthwhile to bring them up to date, as well as to make available modern immunization vaccines in Italy for persons who are particularly exposed, such as forest rangers, hunters, veterinarians, campers and similar groups of persons.

We do not believe that the appearance of sylvatic rabies which is expected in Italy should create particular alarm. It involves a disease which is present in almost all European countries and which does not provoke particularly important problems provided the above-mentioned measures are continued and the population is adequately informed on the dangers and precautions to be adopted.

PERU

FOOT-AND-MOUTH DISEASE VACCINATIONS IN AREQUIPA

Lima EL COMERCIO in Spanish 22 Feb 77 p 8

[Text] A massive vaccination campaign against foot-and-mouth disease has been started by the Ministry of Food in the Arequipa Department for the purpose of safeguarding the stocks of cattle.

The campaign is one of several which will be carried out in the area of Arequipa during the current year, and is also intended to ensure the supply of beef and milk.

On the other hand, the Ministry of Food has fittingly trained the personnel in charge of the vaccination by means of a brief theoretical and practical course on parasitology.

For their part, producers (independent or associated) must purchase a dose of vaccine against foot-and-mouth disease for each head of cattle. Each dose costs 8 soles.

This purchase greatly facilitates the task of the veterinarians and the sanitary technicians because they will have sufficient vaccines available for the corresponding inoculation.

The distributors of this vaccine have instructions to provide the necessary facilities to cattlemen in order to make easier the campaign.

REPUBLIC OF SOUTH AFRICA

ALGAE RESPONSIBLE FOR DEATHS OF THOUSANDS OF ANIMALS

Salisbury THE RHODESIA HERALD in English 12 Apr 77 p 7

[Text] The water of Lake McIlwaine teems with life. One blue-green alga that lives in this water has brought death to animals in South Africa.

Although countless tests by Rhodesian scientists have proved that the microscopic plant *Microcystis aeruginosa* that abounds in the lake is not poisonous, the identical plant is responsible for the deaths of thousands of cattle, horses and sheep in South Africa.

Dr David Mitchell, a botanist at the University of Rhodesia and a world expert on the Kariba weed problem, said yesterday the lens-shaped alga had been linked with sporadic cattle deaths at Hartebeespoort Dam recently and had caused many deaths of animals in the area of the Vaal Dam in 1939 and the early 1940s.

The plant carries a potent poison and then mysteriously becomes harmless. The poison attacks the liver. Horses and dogs have also died.

South African scientists, notably Miss Deryl Barlow of the National Institute of Water Research, had investigated the alga in considerable detail, involving studies under the electron microscope.

Guinea Pigs

Dr Mitchell said that among the many tests on the Rhodesian variety of this *Microcystis* was feeding guinea pigs on the plant.

There was no evidence that any of the Rhodesian strains could kill, he said. The changes which brought about toxicity in South Africa were due to unknown environmental factors.

He said Mr William Scott of the Council for Scientific and Industrial Research in South Africa was able to separate the alga from the bacteria most closely associated with the plant. Thus the researchers were able to prove by using pure cultures that it was the alga that was toxic, or some substance produced in it. But the poison was only produced during brief spells in summer.

The South Africans have discovered under the electron microscope that the poisonous alga sometimes contains hexagonal crystalline lattices. These could be viruses and in turn might explain the toxicity. The crystalline structures look like viruses that invade other plants such as the tobacco mosaic virus.

Very little is known about the biochemistry of the poison, except that it is a peptide--one of a complex chain of protein substances formed by amino acids --and that the toxic substance is not localized in any part of the plant cell but appears to be a product of normal cell growth.

The South Africans have asked for specimens of the Rhodesian alga to be sent to the CSIR for testing, said Dr Mitchell.

He leaves on May 18 to join the Commonwealth Scientific Institute Research Organization in Australia. He will take up an appointment in the Division of Irrigation. He was offered the job because of his expertise in waterweeds.

"A lot of research was carried out here in the past," said Dr Mitchell.

"There is none being done now. But we are satisfied that there is no evidence of toxicity in Rhodesia."

RHODESIA

VETERINARY RESEARCH LABORATORY AND TSETSE UNIT OPEN

Salisbury THE RHODESIA HERALD in English 1 Apr 77 p 5

[Text] The new Veterinary Research Laboratory and the Tsetse and Trypanosomiasis Control Headquarters, opened in Salisbury yesterday by the Minister of Agriculture, Mr Rollo Hayman, was described by him as "one of the best and most effective laboratories in Africa."

The Minister said that veterinarians had played a big part in the growth and history of Rhodesia, and if it had not been for the veterinary profession, there would have been no livestock industry in the country today.

Separate Wings

The building, which is H-shaped, with separate wings for the two departments, has been named the Bevan Building to commemorate the work of Mr Llewellyn Bevan, appointed as a Rhodesian Government veterinary surgeon in 1905, and Director of Veterinary Research in 1921.

The Minister said that the breadth of work carried out by Mr Bevan was remarkable. He had at least 130 published works to his credit, and had worked on nearly every important disease in Rhodesia.

It was appropriate that this fine building had been named after him. Two of his associates, Mr Rupert Jack and Mr J. K. Chorley, had not been overlooked, and the Tsetse section of the building would be called the Jack-Chorley Wing, in honor of these two pioneers of tsetse control in Rhodesia, said the Minister.

Mr Jack retired in 1942 as Chief Entomologist, after 33 years' service. Under his control, more than 26,000 km² was freed from tsetse fly and made available for agricultural development. He had recommended that the area which is now Wankie National Park should be set aside for wild animals in perpetuity.

After the opening ceremony, Mr Hayman made a presentation to the retiring Director of Veterinary Services, Mr John Williamson.

Born and educated in Salisbury, Mr Williamson qualified as a veterinary surgeon in Edinburgh, and joined the Southern Rhodesian Government service as a veterinary research officer in 1940.

After service with the Royal Air Force, he returned to the Veterinary Research Laboratory. He was appointed assistant director of Veterinary Services in 1963, and became director five years later.

He is to be succeeded by the assistant director, Dr Alex Wilson.

SECURITY FORCE MEN RECEIVING TREATMENT AFTER RABID PET DIES

Salisbury THE SUNDAY MAIL in English 1 May 77 p 1

[Text] Seventy members of the Security Forces are having medical treatment against rabies after their pet dog was found to be a potential killer. The men, serving at Binga, on the shores of Lake Kariba, are having special vaccinations since the death of the dog, from rabies.

The scare began when the dog died suddenly and a laboratory test confirmed that it was rabid. Until then, the dog had been the men's pet and even went into the mess.

The incident caused the Ministry of Health yesterday to warn all security forces and civilians with duties in the operational area to keep away from all stray dogs and other animals.

And, fearing that the disease could be introduced to Rhodesia's towns and cities, they warned: Never take an animal home.

Prevalent

The warning was directed to Internal Affairs and Roads Department staffs, as well as the security forces.

A senior Ministry official said: "Rabies are a serious worry for us. It is particularly prevalent in Matabeleland and Victoria province."

The disease is transmitted from the animal's saliva through cuts, scratches or abrasions in a human's skin. Once contracted, chances of survival are

virtually nil. The 70 men included soldiers and Police servicemen. They were put on a 14-day immunization program, with injections every day, after the dog died several days ago.

Necessary

Lieutenant-Colonel Paul Pickles, the Army's Assistant Director of Medical Services, said: "Rabies has been confirmed in the dog which died and, as a result, it was considered necessary to inoculate 70 men, some of them Police.

"They are a 14-day course of duck embryo vaccine, one injection per day."

He added: "There is a high incidence of side effects from the vaccine. According to World Health Organization figures, one-third of people have reactions to this vaccine in the shape of slight fever, aching in the muscles, general flue-like symptoms."

It is understood the men are off combat duties but are capable of light duties for the period of the precautionary treatment.

Colonel Pickles said: "I believe all men deployed in the operational areas should keep well away from animals, especially dogs, and under no circumstances befriend them.

"If there is the slightest doubt about the behavior of an animal it should be shot.

"The head should be cut off and delivered to the nearest district veterinary officer, who can remove the brain and send it in prescribed solutions to the Veterinary Research Laboratory in Salisbury for examination."

The disease attacks the central nervous system.

Lethal

Colonel Pickles added: "It is fatal in the vast majority of cases. There are only one or two recorded instances of patients who have contracted rabies surviving.

"One of these was in London, where the very latest sophisticated facilities were available. Otherwise, it is a highly lethal disease."

A few months ago, several security forces members on duty in the Honde Valley had to be vaccinated after befriending a suspected rabid dog on a tribal trust land.

The petting of stray domestic and other animals in the operational area is causing doctors and veterinary officials increasing concern, particularly when animals are taken home.

In addition to dogs, rabies can be found in a range of wild animals, including monkeys, night apes, hyenas, jackals and mongooses.

When an animal is infected, its normally friendly and affectionate nature turns snappy and vicious.

TERRORIST THREATS CAUSE BREAKDOWN IN DIPPING SERVICE

Salisbury THE SUNDAY MAIL in English 1 May 77 p 2

[Text] Hundreds of African families are watching their cattle falling sick and dying because of terrorist warnings not to dip them against disease. After months of neglect of this essential veterinary precaution, diseases carried by ticks are now taking a toll.

The outbreak of redwater fever and anaplasmosis in tribal trust lands in the operational area where dipping is not taking place is doubly bad for the Africans.

Already terrorist intimidation has caused many black farmers not to take precautions against sleeping sickness caused by the tsetse fly and 164,000 cattle are threatened.

Dr Alex Wilson, director of the Department of Veterinary Services, said last week that redwater fever and anaplasmosis, diseases of the blood caused by the parasite, were increasing in areas where dipping has been haphazard, intermittent or where it has ceased completely.

"It is not possible to state the numbers of cattle which have died from specific tick-borne diseases because, where a dipping service is insufficient or has broken down, the recording of death figures cannot be maintained," he said.

He said that in most cases dips were not being used because of terrorist intimidation.

Some dip attendants had been murdered by terrorists and others had resigned as a result. "It is believed that tribesmen are being intimidated into not dipping their cattle. The tribesmen are the losers."

Difficulties

In addition, some African councils responsible for dipping in many TTLs had had difficulties in maintaining a proper and regular service, he said.

The loss to the economy is slight--in the past agricultural financial year less than 2 percent of African-owned herd was sold.

But a Government spokesman pointed out the harsh social ramifications.

He said: "There is a loss to the African personally who is unable to sell his cattle when they are in quarantine in those areas where dipping has not taken place.

"He may find himself unable to pay his essential bills such as school fees."

Cattle are the traditional African way of investing wealth. As one affected tribesman said: "My mombes were my bank."

Concerned

Dr Wilson advised Africans to dip regularly and to report any deaths to the councils, district commissioners or local veterinary officials.

He added: "We are naturally very concerned that regular inspections and treatments have been hindered and this has led to an upsurge of diseases, and to difficulties in controlling foot and mouth.

"However, despite the danger and personal risk, Veterinary Department officers are still getting into most areas, although not as frequently as in normal times."

TANZANIA

RABIES PREVENTION IN HANANG DISTRICT

Dar es Salaam UHURU in Swahili 30 Mar 77 p 4

[Text] During the rabies prevention campaign in Hanang District, 90 dogs have been shot and seven others have been given rabies shots in the areas of Bassotu, Katesh and Endasak. Employees of the Department of Animal Husbandry and Health in this district went to Dareda and Bashnet to continue the national campaign to kill dogs spreading rabies. In accordance with the statement issued for the Office of Animal Husbandry Development of Hanang District, by Philimon Kileo, this campaign to kill dogs will be conducted throughout the entire district. He asked the people to cooperate fully and conduct the campaign so that the lives of individuals may be saved and the disease prevented from spreading. Two weeks ago one person died in the village of Dareda in this district after being bitten by a rabid dog. Hanang District has been placed under quarantine and no one at all is being given permission to enter it or bring dogs into the district without written permission from the department of stockraising.

RABIES PREVENTION CAMPAIGN

Dar es Salaam UHURU in Swahili 7 Apr 77 p 4

[Text] Leaders of the Department of Health, Animal Husbandry and Police agreed during a meeting that the number of dogs in Tanzania be reduced from 2 million to 1 million. During the meeting, the leaders discussed the procedures of the campaign to exterminate dogs and also ordered that all dogs which are not killed be given anti-rabies shots. It was also agreed that no one, other than members of the Department of Police, be given permission to have more than two dogs. It was also suggested during the meeting that the earlier procedure for registering dogs must be returned by every Development Committee in all districts. The Department of Animals in the Bush was asked to cooperate with the Department of Animal Husbandry and deal with wild animals which also spread rabies, for example jackals. It was suggested that the Department of Health assume responsibility for instructing the people concerning the danger constituted by this disease and also make certain that sufficient anti-rabies vaccine is available at all times. To make possible the implementation of these tasks, it was directed that District, Regional and National Committees be established in order to handle all matters relating to this disease. During this campaign, 1.5 million shillings will be needed to purchase bullets, 500,000 shillings to purchase shots for dogs, 1,420,000 shillings to purchase 130,000 needles to inoculate people, and 4,150,000 shillings for transport in the regions of continental Tanzania.

UGANDA

ACTIVE PLAGUE FOCI REPORTED IN WESTERN UGANDA

Kampala VOICE OF UGANDA in English 9 Apr 77 p 5

[Article by S. K. Aruo: "Control Rats To Eradicate Their Menace"]

[Text] On March 25, 1977 the Voice of Uganda published an article by B. E. Mavulla outlining the part played by the rat and the rat-flea in the spread of plague to man. He warned that although the rat-flea is the only vector known today, the disease need not necessarily be spread by it.

The most disturbing part of the report is the presence of active foci of the disease in western Uganda, particularly at the foot and slopes of Mt Ruwenzori near the two lakes situated at the border between Uganda and Zaire. The report also states that the organism causing plague in Zaire is identical to the one present in western Uganda.

Considering the amount of human traffic that exists between Kasese and Kampala, and between Zaire and Uganda, we must not overlook the possibility of the disease carrier travelling from Kasese to Kampala. He may be incubating the disease. If this occurs then the whole population of Kampala and even Entebbe will be exposed to great danger.

Apart from being a reservoir of the plague organism, the rat also harbors other dangerous organisms. Outstanding among these is *Salmonella typhi-muruim* which causes disease in both animals and man.

The rat is a very destructive pest, particularly in grain producing areas. The rat has been known to cause considerable damage to the grain in the field. It causes much damage to stored grain, beans, peas and groundnuts.

Domestic rats have been known to be very aggressive. They damage by eating the feet and hands of human beings and their clothes and bedding. Rats can kill chicks. In one peculiar report some years ago rats were reported to have attacked cats!

Rats can cause short-circuiting in motorcars by eating wire insulation materials. They seem to like the warm climate found in and around the car engine.

Since we know so much about what these pests can do, our efforts must be directed to their control and elimination.

There are several chemicals or rodenticides known to control rats effectively. They include sodium fluoroacetate (compound 1080), alphanaphthyl thiourea (ANTU or compound 109), zinc phosphide, phosphorus and warfarin. Concerning the use of warfarin in the control of rats it may be worth to remind the readers that in 1974 this paper (VOU) published an article about "super rats." These were the rats that had developed resistance to warfarin-containing rodenticides.

Not only are these chemicals toxic to rats they are also dangerous to man and domestic animals. Care must, therefore, be taken when selecting rodenticides suitable for various classes of buildings, particularly residential buildings and those used for animals and poultry.

A compound which is extremely toxic such as compound 1080 should never be sold indiscriminately and should never be used in residential quarters. Such compounds may be used in government offices, factories, warehouses, business buildings etc, only when employees are denied access during baiting periods.

Another important aspect of rat control is the proper disposal of refuse and town wastes. Apart from being a fertile breeding ground for rats and flies, refuse is a great public nuisance and dangerous to health. It makes the town untidy. During the rainy season it stinks a lot.

The city and town authorities should therefore pay particular attention to proper, effective and regular disposal of refuse.

VACCINATE, CONFINE DOGS

Kampala VOICE OF UGANDA in English 19 Apr 77 p 3

[Excerpt] The Town Clerk of Moroto Municipality, Mr Namirengo has given notice to all dog owners in the municipality to vaccinate and license their dogs.

The town clerk issued the notice after discovering that many unlicensed dogs were loitering about in the town. He said that every dog above three months of age which has not been vaccinated against rabies, within the last three years, must be brought for vaccination at the Veterinary Office on Tuesday.

In addition to that he warned all dog owners in Moroto to obtain licenses for all dogs above six months.

He has also said that all dog owners should confine their dogs already vaccinated until the stray and unlicensed ones are impounded and destroyed.

FOOT-AND-MOUTH DISEASE

Kampala VOICE OF UGANDA in English 13 Apr 77 p 3

[Excerpt] Quarantine restrictions have been imposed on Atana parish in West Lango district following an outbreak of foot and mouth disease.

Members of public are therefore informed that no animals or their by-products are allowed to move into, through or out of the area.

FARMERS, BUTCHERS ANGRY ABOUT QUARANTINES

Kampala VOICE OF UGANDA in English 15 Apr 77 p 3

[Article by S. K. Aruo]

[Text] There must be a large number of people, particularly farmers, businessmen and butchers who become disappointed or angry when they hear of the closure of a certain livestock market because of an outbreak of a certain disease, usually of cattle. In most cases a quarantine is imposed in an area where such a market is situated.

Admittedly, quarantines are a nuisance. They usually cause considerable economic loss because of the failure to market livestock and their products. They annoy farmers who want to get money to send their children to school.

However, it is important that the public should know why quarantines and closure of livestock markets are necessary. In Uganda, the Diseases of Animals Act lists a number of diseases that are called notifiable diseases.

These are the diseases whose appearance in any area must be reported to the authority. The list of these diseases is not as long as it is in other countries.

In drawing up such a list there are at least two important things to be taken into consideration. They are:

1. Diseases that are communicable to man.
2. Diseases that affect the economy of the country.

There are several diseases in this country that are transmissible from animal to man. They include ringworm, scabies, tuberculosis, anthrax, rabies, brucellosis and tapeworms. The diseases that usually cause imposition of quarantine are anthrax and rabies.

These diseases are very fatal, and this country has had serious incidents. The unfortunate outbreak of human anthrax in Kigezi in 1976 is an important example. There must be many fatal cases of rabies that have not been reported to the authority.

Diseases that affect the country's economy are of two types. There are those that cause losses in production and those that cause heavy mortality.

Among the diseases that lower production foot-and-mouth disease is probably the most outstanding. The disease is particularly important to the dairy farmer, although the beef producer may also experience some setbacks.

In individual cows that are affected milk production may be reduced to zero. This low production is usually due to fever and lack of appetite. Recovered animals usually take a long time to raise their production level. It may not reach the level previously attained by the animals before the disease outbreak.

Diseases that cause considerable death losses are many. Those that stand out supreme are rinderpest of cattle, swine fever of pigs and Newcastle disease of poultry. The common features about these diseases are that they are all caused by a virus. There is no cure for the sick, and they can cause 100 percent mortality.

Those who have seen deaths caused by rinderpest do not want to see it again. It is a painful sight. It is disaster. Herds are reduced to zero. Pastures are littered with dead carcasses. The atmosphere is fouled with the smell of rotting meat.

Vultures and dogs no longer fight each other or quarrel with one another because there is enough meat for each one.

People who are craving for meat can eat until their stomachs ache. The owners of dead animals look sick, and the country is economically sick.

CONTROL OF ANIMAL DISEASES MAY TAKE 10 YEARS

Kampala VOICE OF UGANDA in English 16 Apr 77 p 5

[Article by S. K. Aruo: "Intensify Disease Control To Develop Uganda's Livestock Industry"]

[Excerpt] Though we are able to produce beef that can meet requirements of most overseas countries in terms of quality we are likely to meet a lot of difficulties to find countries that will buy our beef unless our disease control program is satisfactory. Diseases which most countries fear to import because of immense cost of their control include foot and mouth disease and blue-tongue.

Both diseases have been shown to occur in this country. Foot and mouth disease is frequently reported and is responsible for constant closure of livestock markets.

In many countries such as Canada, the United States of America, Britain, Australia, and New Zealand, an outbreak of foot and mouth disease and even blue-tongue results in the slaughter of all livestock in affected area. No country, however rich can risk such a loss.

Therefore, if Uganda has to develop her livestock industry for export purposes, she must embark on an intensive program of disease control. Under the present circumstances it is impossible to eradicate foot and mouth disease. I cannot see even how it may be done in the next one or two decades.

It is however possible to set up a disease-free zone where export beef can be produced. Reports indicate that one neighboring country is embarking on this for export to EEC countries. There is no reason why Uganda cannot do the same.

ZAMBIA

OUTBREAK OF DISEASE IN CHICKENS

Lusaka TIMES OF ZAMBIA in English 6 Apr 77 p 6

[Excerpt] A mysterious disease has struck the Ferngrove farming area west of Lusaka, killing hundreds of chickens in the past two weeks.

The source of the disease, known as "gumboro," is not known, but acting director of department of veterinary and tsetse control, Dr Mainza Shandomo, believes it has been imported into the country.

Dr Shandomo said in Lusaka yesterday that the disease was diagnosed last year and found to be incurable. "The only cure is good management and feeding," he added.

Toured

Dr Shandomo said following the outbreak of the disease, his men toured farms in the area to see for themselves how the disease was killing the chickens.

"We have no figures but hundreds of chicks have died from the disease," he said.

To stop it from spreading to faeces on the backsides of the chicks and nervousness which made them unable to walk until they died.

He said his department was planning to buy vaccines for farmers as soon as possible. But, some rich commercial farmers in the area had already volunteered to buy the medicine, Dr Shandomo added.

He appealed to farmers to isolate the chicken from each other according to the age group so that, if one group was diseased, the other might be saved.

III. PLANT DISEASES AND INSECT PESTS

ARGENTINA

CITRUS GROWERS CONCERNED ABOUT SPREAD OF DISEASE

Buenos Aires LA PRENSA in Spanish 26 Mar 77 p 1-Sect 2

[Text] Corrientes--The spread of one of the most dangerous bacterioses affecting citrus, the "cancrosis" caused by the *Xanthomonas citri* (Hasse) Dowson bacterium, in the principal citrus-producing areas of the country is causing serious concern among the growers and the authorities.

The plague appeared in the province approximately 12 years ago, in the area named Playadito of the department of Ituzaingo, on the border with Misiones. It apparently originated in Brazil, from where it had spread to Paraguay and to the province of Misiones.

The affected growers, owners of small groves, could not cope with the situation, and they gave up their stands, the majority of which were completely eradicated in order to use the land for other purposes.

Several years later, early in the "Seventies," isolated outbreaks appeared in the area of Bella Vista, in the most important center of citrus production--according to official statistics, the departments of Bella Vista and Saladas, jointly with that of Monte Caseros, produce 40 percent of the citrus fruits of the country--without being given much importance perhaps because the majority of them were rapidly isolated.

Recrudescence of the Plague

The disease afflicts the species which produce early fruit, affecting lemons most of all, and, in descending order, grapefruits and oranges. In the course of 1976, a recrudescence of the plague was observed when it rapidly spread

over wider areas of Bella Vista. Growers, as well as the provincial authorities and technicians of the National Institute of Agricultural Technology (INTA), decided to engage in a decisive effort to counteract the damages occasioned by the bacteriosis, which threatened to be extensive.

To that end, the Provincial Committee to Combat the Citrus Bacteriosis--Decree 533 of 16 February 1977--was established this year under the chairmanship of engineer Pedro Briend, regional delegate of the Provincial Secretariat of Agriculture and Animal Husbandry, and a membership of INTA technicians and growers. Local subcommittees were designated in Monte Caseros and Saladas.

Fight Plan

The fight plan, which is in full operation, consists of two stages: 1) Control and prevention of the plague by means of the spraying of uninfected groves and the treatment of those recently infected, to which end the government provides economic assistance to producers (via bank credits and delivery of adequate bactericides); and 2) Eradication of trees whose recovery is not possible.

For the latter task, the province has contracted the services of a private enterprise which has five teams engaged in the eradication of trees, especially grapefruit, which are impossible to save.

At the same time, the technical teams of the province and the INTA are conducting a thorough inspection of the groves. Only 10 percent of the citrus trees has been found to be infected out of a total of more than 250,000 trees inspected to date. Only 10,000 trees have been eradicated.

It should be noted, however, that the citrus-growing area of the province has in excess of 1.5 million trees, for which reason it is not yet possible to determine accurately the extent of the disease.

Growers, for their part, although they have not requested more cooperation and more effective means of support from the provincial or the national authorities, as was previously pointed out in a statement published in this daily, are aware of the situation and spontaneously help to carry out all the measures required by the fight plan implemented by the respective committees.

Interviewed by our reporter, engineers Francisco Jose Blaha and Oscar A Iacopini, the provincial undersecretary of agriculture and director of agriculture, respectively, spoke about the decision of the provincial government to protect the citrus industry of Corrientes with all the means which the circumstances require at the local level, relying on the technical cooperation of the INTA. They stressed, moreover, the need for the struggle against the bacteriosis to be conducted at the regional level, because its characteristics make ineffective any action confined to local limits.

Sanitary Measures

In the technical circles connected with the growers themselves, this reporter was also informed about the urgency of the adoption of measures at the national level, particularly as regards sanitary policy, such as a sanitary cordon which will prevent the spread of the bacteriosis to other locations which still have not been contaminated. Such a thing happens, pointed out the growers, because of the total lack of action on the part of the national authorities to prevent the spread of the disease from other provinces, such as Formosa and Chaco, whose authorities still have not undertaken an effective fight plan.

Though local technicians employed by the national government cooperate with excellent dedication and good will, the lack of funds to carry out an effective sanitary action leaves the Corrientes authorities destitute and powerless in relation to sanitary control measures going beyond their own jurisdiction.

BRAZIL

DISEASE INFECTS CACAO TREES IN ESPIRITO SANTO

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 26 Feb 77 p 23

[Text] Vitoria--"Brown rot," a plague which has been attacking the cacao trees of the municipio of Linhares, north of the capital of Espirito Santo, should bring about a drop of more than half of the normal production of the area (600,000 arrobas), according to technicians of the Executive Committee for Cacao Production Planning (CEPLAC). They assert that the incidence of the plague is "amply" related to the rampant deforestation which has been carried out in the past few years in 22 municipios, besides Linhares, of the state of Espirito Santo.

As a result of that deforestation, another pest, known as the "small locust of the pastures," appeared in the municipios neighboring Linhares, bringing about a 30 percent reduction in the cattle herds in comparison with the figures of 5 years earlier, and now causing the flight of cattlemen mainly to the Amazon region. The mentioned technicians say that the owners are selling their farms to reforestation enterprises because they foresee that their lands will be transformed before long into a large, artificial forest of eucalyptuses.

DISEASE THREATENS BANANA CROPS IN RIBEIRA VALLEY

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 1 Mar 77 p 23

[Text] Ribeira Valley--Banana growers of Ribeira Valley and the Southern Littoral, where 90 percent of the state production is concentrated, feel helpless in the face of an old threat and frightened by the prospect of extensive damage: it is the new attack, of which there is no longer any doubt, of the plague known as Opogona SP. The fruit affected by it is commercially despised, and it reaches the point of total decay if the infestation progresses.

Exporters found out about the disease several months ago, when they had the trucks stopped at the borders with Argentina and Uruguay and the cargoes confiscated. All those who deal with bananas in the valley are concerned about the threat of damages and total losses in connection with their shipments. Producers likewise feel forsaken by the agriculture officials, who do not advise them on how to combat or control Opogona SP, which at this time is affecting practically all of Ribeira Valley.

The negative repercussions on the economy of the area are already evident, starting with the low price of bananas: exporters do not risk paying more than a bare minimum in view of the uncertainty of whether they will be able to cross the borders with their trucks. The uneasiness is growing among exporters and producers.

According to exporters Jamil Haieck, Nei Leffa and Dario Scwanck, the problem at the borders has become worse in the past few months, "it being unusual when the presence of Opogona SP in the fruit is not confirmed." Inspection starts in Uruguaiana, on the Brazilian side, where agronomists of the Ministry of Agriculture take samples of the cargo for analysis. The few trucks which manage to get permission to proceed confront a second--and much stricter--checkpoint on the Argentine side. Prevented from selling the cargo in the neighboring country, the loss to the exporters can be total because the Rio Grande do Sul market is saturated. If they force the sale of the product, they do not get prices which are enough even to cover the cost of the fuel.

Helplessness

The regional agricultural delegate in Ribeira Valley, Valdir Ferreira Moraes, states that he does not have the means to act effectively either in controlling the plague or in guiding the producers. And he explains: "Since 1974, research stations equipped with thermohydrographs and traps to capture live insects were installed in the municipios of Eldorado and Sete Barras." The material collected, jointly with the information on the humidity and the temperature, is sent to the Biological Institute.

Banana growers, anxious to find out soon a way to eradicate the plague, have increased their appeals to the regional agricultural delegate in the past few months. Unable to do a thing, Ferreira Moraes limits himself to responding: "I have tried unsuccessfully to obtain subsidies which will enable me to perform the task of protecting the farmers of the area. Nevertheless, the material and the human means are lacking." Jose Carlos Fernandes, president of the Rural Labor Union of Registro, discounting official measures or assistance, asserts: "The technicians of the Regional Agricultural Division have already confirmed the presence of the plague in the banana plantations of the municipios of Guaruja, Santos, Itanhaem, Miracatu, Itariri, Juquia, Cananeia, Eldorado, Pedro de Toledo, Peruibe, Pariquera-Acu, Registro, Sete Barras and Iguape. The Opongona SP, also known as the Sigatoka disease, was unknown in Brazil until 1972, when it was discovered in the banana plantations of Guaruja. Since then, it has been a reason for concern among the banana growers and exporters, and for the mobilization of Brazilian and foreign phytosanitarians to combat it.

The vast infested areas in the Southern Littoral and in Ribeira Valley are proof, according to technicians, that the plague has become acclimated to the region. Its presence in the fruit cannot be detected by a superficial examination, but it can be determined by the existence of bands of prematurely ripened bananas on the stalk. Only one kind of caterpillar in the same stage of development is found in the holes bored into the fruit. There are, however, caterpillars of different ages, which shows that the ovipositing in the stalks can take place more than once.

"The lack of guidance on the part of the responsible agencies, aggravated by the imperceptibility of the presence of the plague (Opogona SP penetrates the fruit without leaving a trace), is to blame for the continual expansion of the infested areas. The disease is spreading, and it is being ignored. The official agencies are in permanent state of research, and there is no definite policy to control the plague."

In view of this, farmers resort to insecticides to combat Opogona SP in their banana plantations, not knowing whether it will have any good results or will damage the fruit. The president of the Rural Labor Union of Registro laments the lack of unity of the rural owners, which detracts from the union's power to act. He reports that there are 1,000 properties in Registro, and a little more than 150 members. Jose Carlos Fernandes is more concerned about the fact that a massive attack of the moths (as Opogona SP is also known) still has not taken place, as it did in Iguape 4 months ago. Another threat equally concerns him: "I have continually noticed the presence of nematodes in the area which attack the roots of the plants."

DISEASE ATTACKS ORANGE, SOYBEAN CROPS IN MATO GROSSO

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 17 Mar 77 p 30

[Text] Aracatuba and Dourados--Oranges in the area of Aracatuba and soybeans in that of Dourados, both located in Mato Grosso, are crops receiving the attention of agricultural technicians and phytopathologists because of the attack of plagues. The incidence of citrus canker in the groves of the area of Aracatuba has grown in the past few months and is already creating concern among the commercial-scale orange growers. There are about 800,000 orange trees in the area, in which the municipio of Guaracai is the biggest producer with 170,000 trees.

In the month of February, technicians of the Regional Agricultural Division (DIRA) uncovered 24 foci of citrus canker in Aracatuba, 3 in Santopolis do Aguapei and 3 in the municipio of Lavinia. The DIRA interdicted the groves of Aracatuba and eradicated 8,000 citrus trees in 88 properties. In addition to that, it keeps 44 employees engaged in the inspection of the groves. When a source of canker is uncovered, all citrus trees within a radius of 1 kilometer are eradicated because the plague spreads very rapidly. One infected tree can cause five or six nearby to be affected also in only a week.

The agent of citrus canker is the *Xanthomonas citri* bacterium, which attacks the leaves, fruit and even the branches of orange, lemon and similar trees, completely destroying the plant within a period of 3 years. Transmission is generally accomplished by insects, birds and small animals, there being no known remedy up to now against the disease, which is highly contagious.

Technicians of the DIRA reiterate that although aware of the seriousness of the disease, man continues to be the principal long-range transmitter. Despite the inspection conducted at the citrus canker control stations, many people manage to elude the agents and go through with contaminated oranges hidden in vehicles. Those who act in that fashion ignore contamination and give occasion to a new source of the disease in another area.

Technicians believe that citrus canker spread in that manner to the groves of Aracatuba, which had no problems until October of last year. The ban on the transport of citrus fruits in the municipio does not prevent the disease from spreading throughout the area, which is very large and controlled by only two stations: one located in Castilhos, near the Parana River, and another in Agudos, in the section of Bauru.

It is believed that the enormous distance between the control stations permitted the spread of citrus canker to the groves of Lavinia and Guaraci, where most of the orange production of the area is concentrated. The first sources in the state of Sao Paulo appeared in the area of Upper Sorocaba. The disease subsequently spread to Upper Sao Paulo and currently is reaching the Upper Northwest, but there are reports of the uncovering of two sources

in the vicinity of Sao Jose do Rio Preto, in Upper Araraquara. The way citrus canker is spreading, it could shortly reach the so-called orange region, whose center is Bebedouro.

In the municipio of Dourados, Mato Grosso, agronomist Celso Fumagalli discovered about a month ago a larva which destroys the outside covering of the roots of the soybean plants. He found several sources in a planted field of 150 hectares. The larva, which is unknown in the area, measures less than 1 centimeter, is whitish and of the masticatory type. It is being studied, up to now without success, by agronomists Celso Fumagalli--its discoverer-- and Jose Roberto Morais Marques. They have found no reference to it in writings relating to the subject.

RHODESIA

FIGHTING TSETSE FLY BY ROBOT AND SUPER-SMELL

Salisbury THE RHODESIAN HERALD in English 4 Apr 77 p 11

[Article by John Dalling]

[Text] Little robots dotted all over the bush may one day eradicate tsetse fly over huge areas of Africa.

They will operate by emitting a synthetically produced smell to attract the flies. The flies will enter a trap which will direct them into a chamber where they will be sterilized by aerosol spray and released.

The robots will be automatic, requiring only periodic replacement of the smell-producing agency and the aerosol.

Security may be a problem, preventing animal or human interference with the robot and securing the sterilizing chemical, which can be dangerous to humans. But the theoretical bases for the rest of the operation have already been established.

Cheap

This was made clear by Professor Einar Bursell, head of the Department of Biological Sciences at the University of Rhodesia, when he spoke at a recent meeting of the Rhodesia Scientific Association in Salisbury.

He said: "We have here the potential for the early development of a cheap, simple and effective method of tsetse control."

He would be the first to acknowledge that previous methods of control had been extremely effective, but it had to be agreed they were neither cheap nor simple.

They required meticulous planning, absolute dedication at all levels and execution with the greatest regard for detail.

Looking at Africa in the broader context, it was obvious that tsetse control was out of reach of all but the most advanced States. Rhodesia was fortunate in having the necessary infrastructure and staff.

A cheap and simple system would therefore be of incalculable benefit and the implications for the development of Africa immense.

Professor Bursell, one of three scientists to address the meeting, began by describing his work on sterilization, a technique to depopulate a species by reducing its birthrate.

A female tsetse fly mates only once in her life, so that if she or her mate is sterile her reproductive potential is eliminated.

It had been found, he said, that the most efficient way of exposing flies to sterilant was by aerosol.

Spray

Putting chemical deposits on the inside of the treatment chamber and leaving flies to land on them had proved unsatisfactory. This type of sterilization was unreliable and mortality too high, due to the uneven way in which flies alighted.

Spray was probably effective because it gained direct access to the target organs, the ovaries and testes.

Contained in a canister, it was neatly and safely stored and was protected from ultra-violet radiation which rapidly brown down these highly unstable substances.

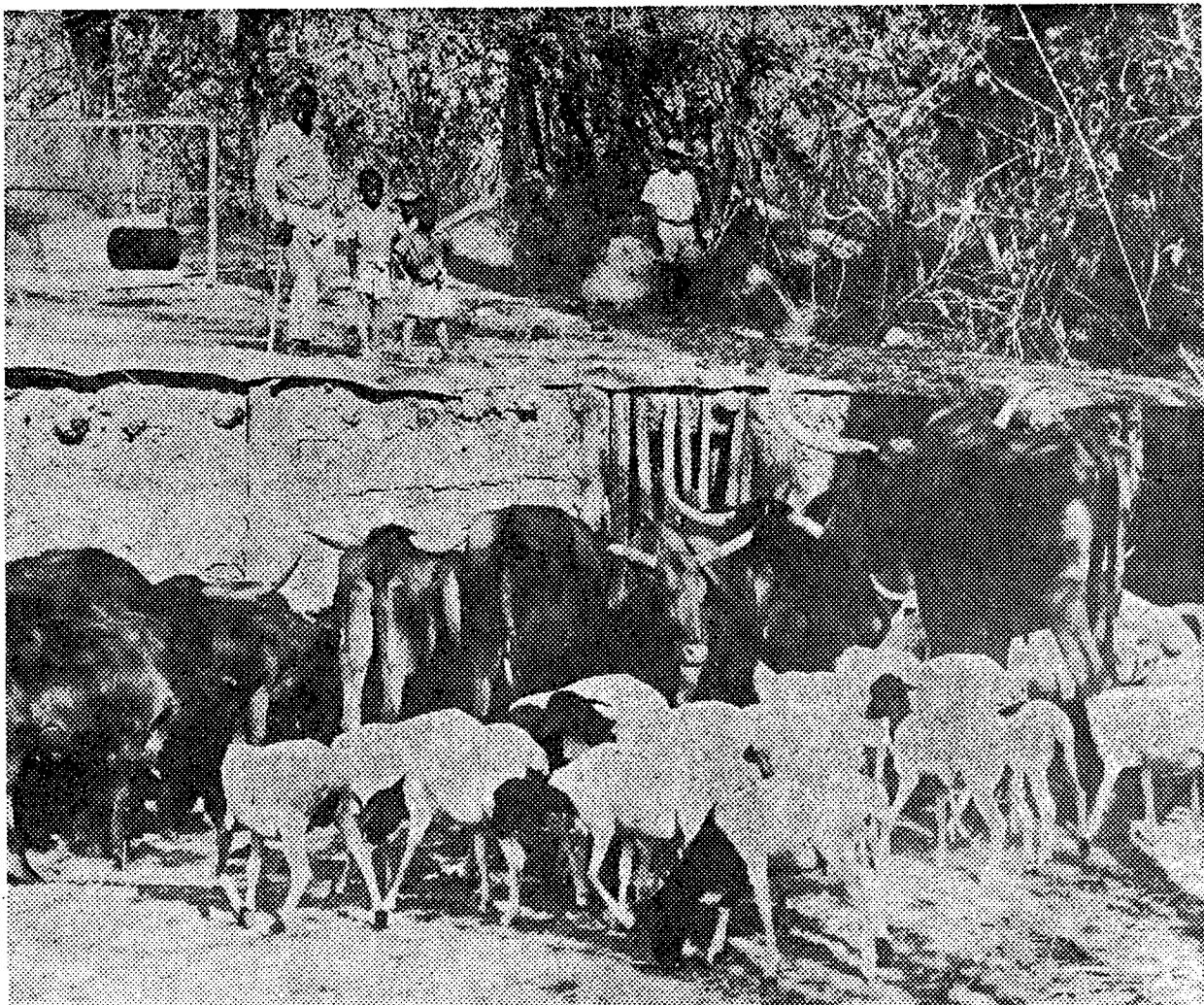
Also, frequency and duration of spray could be adjusted to circumstances.

Previous sterilization programs had been only partly effective because the laboratory logistics required to produce millions of treated insects had been overwhelming.

The latest system would get round this difficulty by continuously processing wild flies in their environment. A station could be left in place for as long as necessary, a week, a month or a year.

Dr Glyn Vale, an entomologist with the Department of Veterinary Services, said earlier methods of control had inherent problems.

Hunting out host animals and killing flies with insecticides required prodigious planning, surveying, supervising and funding. These methods also tended to be seasonal and to have an impact on the environment.



The covered pit into which large numbers of animals were put to provide a super-smell to attract flies. The black cylinder (top left) was used to give the flies a visual target and the electrified screen beyond it to kill and collect them.

Catching flies to reduce the population fell down because of the small number caught--perhaps 20 a trap a day.

What was needed was a bait to attract the flies and an efficient trap to catch those that were attracted.

Experiment had established that flies were attracted to a host animal by smell, and the stronger the smell the more flies came. There was also a direct relationship between size of host and number of flies attracted.

By putting cattle, sheep, goats and buffalo--a total weight of more than 12 tons--into a covered pit and drawing off the air he had produced a super-smell which drew huge numbers of flies--13,000 recorded in one afternoon.

Further work had shown that the head of the animal supplied the smell, and they were trying to isolate the vital constituents of the odor so it could be produced synthetically.

Moreover, the bait proved effective over long distances. Flies had been drawn from more than two km away. Continued success might easily stretch this to four km and one station would be able to cover a large area.

A lot of work remained to be done. The apparatus to attract, trap, sterilize and release the flies was hand-made, big and clumsy. If it was to be used by unskilled people in countries with small budgets it would have to be mass-produced, small and neat.

Dr John Hargrove, another tsetse control entomologist, described the numerous experimental traps he had made to try and find an efficient design.

FUNGUS INFECTION THREATENS COFFEE CROP IN CHIPINGA

Salisbury THE RHODESIA HERALD in English 29 Apr 77 p 14

[Text] The coffee growers of Chipinga and Melsetter, where about 75 percent of the country's coffee is produced, will be getting sky-high prices for their crop this season.

But--in addition to living and working in the sensitive south eastern security area--they have a serious worry that has nothing to do with the terrorist threat.

This is fusarium disease, a fungus infection carried by spores, for which there is no known cure. When it attacks the main stem, is always a killer.

It can also attack primaries (branches) and berries, though the infection does not necessarily go from there to the main stem. In fact some older trees can fight off this sort of infection.

Serious

The disease has almost totally wiped out the Malawi coffee crop, and has been in Rhodesia for about 10 years, though it has only become a serious threat recently. It is believed to have been brought in by imported, infected plant material.

Considerable efforts are being made to combat the disease. The Rhodesia Coffee Growers' Association is to establish a working sub-committee with specific responsibility for investigations into fusarium and also coffee leaf disease, another serious yield loser.

Individual farmers are trying out new techniques, and much of the work going on at the coffee research station at Chipinga is devoted to preventative and control measures.

Techniques

Captan is a preventative spray--expensive but effective--and other techniques are regular inspections, and the destruction of infected material.

A spokesman for the research station said the peak spore discharge is during or after the rains, and the worst times are when rain and wind are combined.

New plant material at the research station is from cuttings taken from known fusarium free coffee trees. A pool of breeding material, from Rhodesia and other countries, is steadily being built up.

The station is the official supplier of coffee seed to the industry, though farmers can sell seedlings to each other--though never from a farm with fusarium on it.

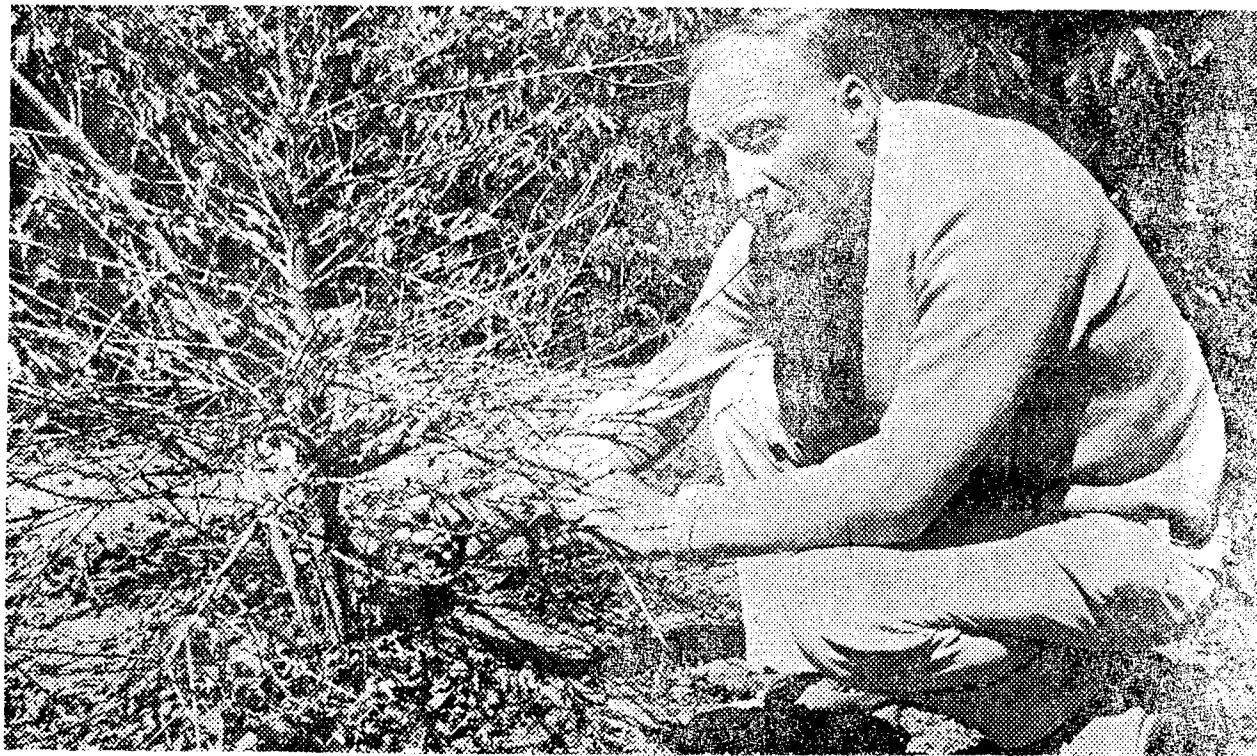
A possible focus of infection could well be the several abandoned coffee farms in the area, and many growers feel that the Agricultural Finance Corporation, to which ownership has reverted should act to get these farms viable again.

The infection only enters a coffee tree through a wound--this can be an accidental brush with a tractor, or pruning, or, in the case of berries, even when the bud bursts.

One new management technique being tried by Mr Bruce Rodwell, vice-chairman of the RCGA, is to plant seedlings in pairs with wider spaces between the rows.

The trees support each other, and the young trees give a heavier crop than when alone. If the disease strikes, it is possible to remove one tree if infected, and leave the other.

Mr Rodwell has worked out that over 20 years, yields should be considerably higher with this method.



BRUCE RODWELL examines a coffee tree killed by fusarium. The infection ring barks the main stem. Surrounding trees remain healthy, and the danger time for spore carrying is during or after the rains, especially when there is wind. Infection will only enter the tree through a wound.

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